

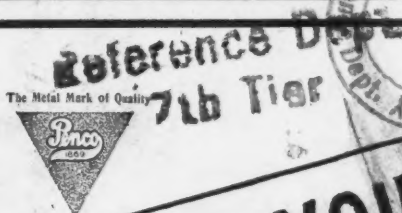
Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIX

CHICAGO, APRIL 22, 1917

Number 12



IF YOU WANT
IMMEDIATE DELIVERIES

*on Metal Lath, Corner Beads,
Metal Stud and all forms of Sheet
Iron and Steel Building Materials—*

you'll do well to consider Penco Products. Our service to the Eastern coast is unexcelled. Our delivery over the entire United States—in fact, is unrivalled. We are not tied up with embargoes on Western shipments.

ORDER THE

LINE

Penco
1869

for reasons other than lightning-fast delivery. Stock them because they'll satisfy your trade. Durability and scientific construction are discriminating features of every Penco Product.

DEALERS

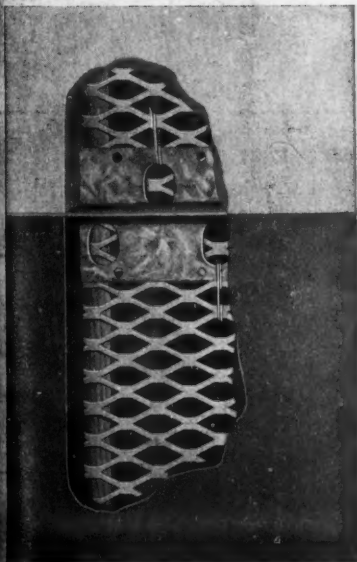
Be sure to write for our latest literature. Then tell us what you need and when you'll want it. We'll do the rest.

Penn Metal Company

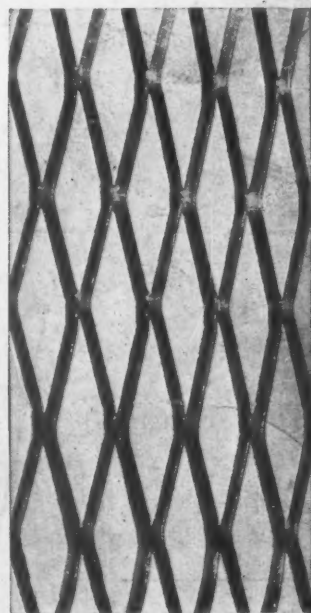
559 West 36th St.

New York City

SALES OFFICES: BOSTON, PHILADELPHIA, PORTLAND, MAINE



Showing Application of Penco No. 3 Metal Ground Lath



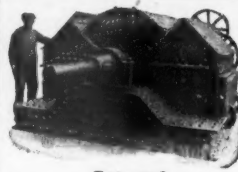
Penco Diamond Mesh Lath Sheets, 24x36, made in steel or Hampton metal. Weight for weight, the strongest made. The slanting trussed formation of the strand in Penco Metal Lath in addition to the wide strands and 1/2 in. opening makes it a reinforcement and not merely a background for plaster.

Giant BELT for Your Drive
Granite BELT for Your Elevators
Supremo BELT for Your Conveyors

WHY? ASK US.

Revere Rubber Co.

BOSTON NEW YORK CHICAGO NEW ORLEANS PHILADELPHIA



Patented

"PENNSYLVANIA"

Hammer Crushers For Crushing and Pulverizing Limestone, Gypsum, Marl, Shale, Etc.
 Main Frame of Steel, "Ball and Socket" Self-aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.
 No other hammer Crusher has such a big Safety Factor.

Pennsylvania Crusher Co.

New York PHILADELPHIA Pittsburgh

Penn-Allen Portland Cement

ESTABLISHED 1904

PENN-ALLEN CEMENT COMPANY

General Office: Allentown, Pa.

Works: Penn-Allen, Nazareth, Pa.

For Your Concrete

Use

Clinchfield Portland Cement

— Its —
*High Quality
 and Uniformity
 Will Give You
 Lasting Satisfaction*



CLINCHFIELD PORTLAND CEMENT CORPORATION

Sales Offices and Mills
 KINGSPORT, TENNESSEE

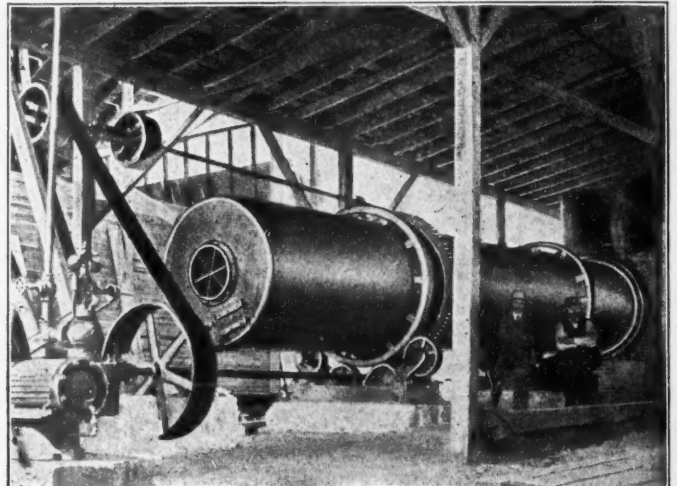
Branch Sales Offices:

Charlotte, N. C., 908 Commercial Bank Building
 Cincinnati, O., 1305 Union Trust Building
 Savannah, Ga., 413-415 Amer. Bk. & Trust Bldg.

RUGGLES-COLES DRYERS

STATIONARY AND PORTABLE

"Built to Dry at the Lowest Ultimate Cost"



Seven different types of dryers in many sizes and special dryers designed and built to meet unusual conditions. We are now drying 67 kinds of materials, among them sand, rock, gravel, gypsum, coal, clay, etc.

Our many years of experience is at your service

Ruggles-Coles Engineering Co.

Eastern Office:
 59 Church St.
 New York City

Works: York, Pa.

Western Office:
 323 S. Michigan Ave.
 Chicago, Ill.

Daily Capacity
 9000 Barrels



Quality
 Quantity
 Service

MORE THAN FIFTEEN YEARS OF SATISFACTION

FOUR PLANTS:

ALPENA, DETROIT, WYANDOTTE and CLEVELAND

HURON and WYANDOTTE

Great Water and Rail Facilities
 Best Serve the Entire Middle West

EVERY BARREL TESTED AND GUARANTEED

SOLD BY THE BEST DEALERS

USED BY THE BEST BUILDERS

Main Offices: 1525 Ford Building, Detroit, Mich.

Daily Capacity
 9000 Barrels



Quality
 Quantity
 Service

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2, 1917

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Do you see that those
top sheaves are
ON THE ARMS?

That's why the
LAKEWOOD BUCKET
DIGS DOWN



LAKEWOOD BUCKETS

Note,
too, that
the power in the
LAKEWOOD is divided
EXACTLY EQUAL between these
two shells—they both do the same
amount of work—TWO MEN WILL DO MORE
WORK THAN ONE MAN.

READ THIS ONE

A bucket that will dig out a 40-ft. trench of almost all stone will do nearly anything. When it comes to digging clay, sand, or gravel, the LAKEWOOD will do the work in high speed time.

March 21, 1917.

We have practically finished digging a trench 40-ft. deep for the lift bridge over the New York State Barge Canal at Lockport, N. Y. The material was 75 per cent rock and about 13,000 yards were excavated. The LAKEWOOD CLAMSHELL did the work with marked success. Various observers of the job said they had never seen a clam shell that would handle rock like our LAKEWOOD.

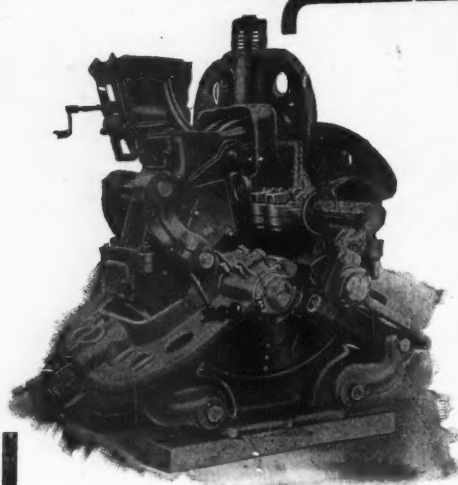
THE TIFFT CONSTRUCTION Co.,
BUFFALO, N. Y.

We can make quick delivery
on all sizes from $\frac{1}{2}$ yard to
2 yards.

Made by
The Lakewood Engineering Co.
CLEVELAND.

Write for
Descriptive Catalog
and Prices.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

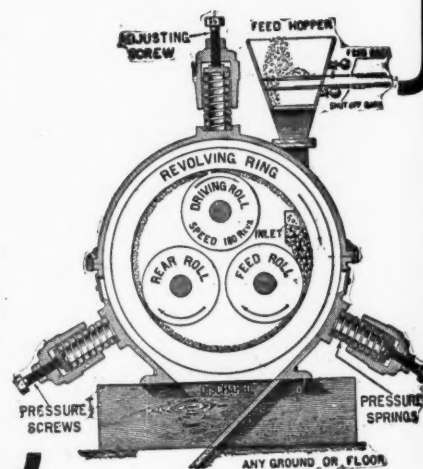
THE RING WOBBLER

The FREE WOBBLING POUNDING RING instantly and Automatically ADAPTS its position to the variations of work.

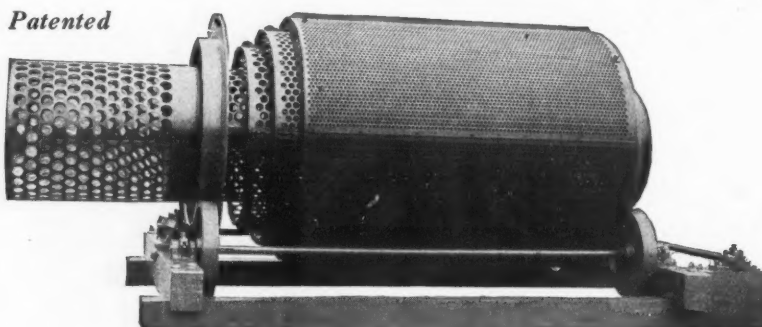
Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

10 RAPELYEA ST., BOROUGH OF BROOKLYN, N. Y. CITY
LONDON, W. C., 31 HIGH HOLBORN
BERLIN-HOHENSCHOENHAUSEN



Patented



CAPACITY—The O'Laughlin Screen is made in several sizes to suit the amount of crushed stone, gravel, sand, etc., to be screened.

MATERIAL USED IN THE CONSTRUCTION of this screen is of the most durable quality. The inner perforated cylinder passes through cast iron heads at each end of screen. The heads are fitted with removable steel tires which can be replaced after several years' wear at small cost. The two heads revolve on four special steel faced trunnions of carwheel specification which last many years.

THE WELL KNOWN QUALITY OF SCREEN MATERIAL furnished by Johnston & Chapman Co. to users of all makes of screens from coast to coast is sufficient recommendation of the quality of the perforated cylinders and jackets used in the manufacture of the O'Laughlin Screen.

WRITE FOR PARTICULARS

Another O'Laughlin Screen Testimonial

Johnston & Chapman Co.,
2921 Carroll Ave.,
Chicago, Illinois.

Gentlemen:

We have three O'Laughlin Screens in operation here.

We have been using them for the past five years and must say that they are very economical in regard to repairs and power consumption. We have had experience with nearly all the other types of screens on the market, and it is our candid opinion that your screen far surpasses any similar equipment that has yet been devised.

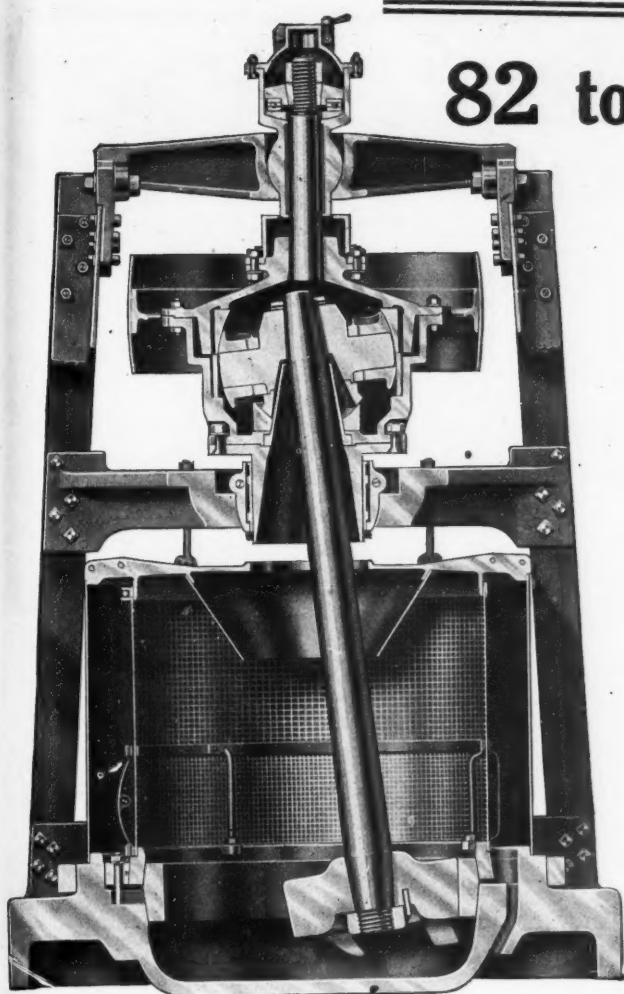
It is a pleasure for us to extend this commendation and we would be pleased to show any interested parties these machines in operation.

WAUKESHA LIME & STONE CO.
Waukesha, Wisconsin.

JOHNSTON & CHAPMAN CO.

2921 Carroll Avenue
CHICAGO, ILLINOIS

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



82 to 83% Through 200 Mesh

Is Easily and Economically Produced
by the

GIANT GRIFFIN MILL

With Latest Improvements

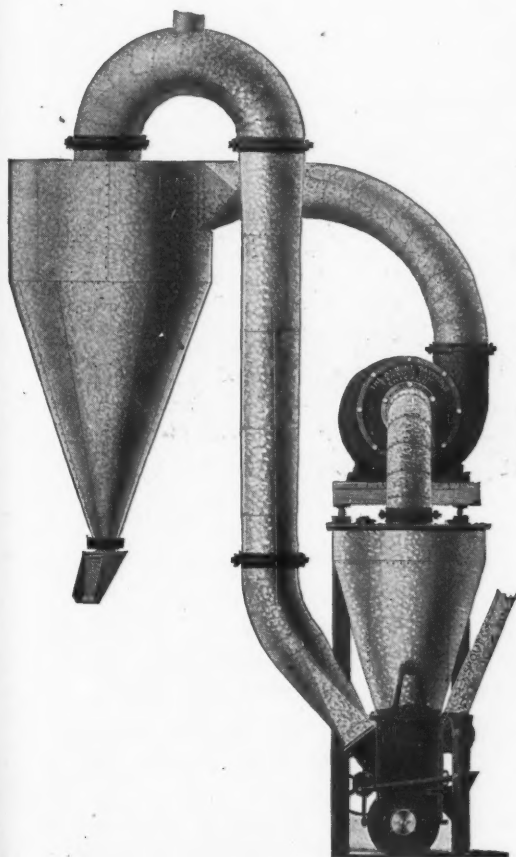
The Griffin Mill has always produced the fineness required and can now meet the new specifications, grinding clinker to a fineness of 82-83% through the 200 mesh sieve at lower cost than any other type of pulverizer or combination of pulverizers

Send for blue prints, descriptive matter, etc., showing our latest model Giant Griffin Mill. It is built to meet the new specifications.

BRADLEY PULVERIZER COMPANY

BOSTON, MASS.

WORKS—ALLENTOWN, PA.



The Troubles You Are Having with Screening Machinery Can Be Eliminated Entirely
by using the

RAYMOND PULVERIZING AIR-SEPARATING SYSTEM

which takes your filter-press cakes or any dry material around one-inch size and reduces it to a uniform powder in one operation.

The Raymond System uses air to produce a uniform fineness and therefore it will handle many materials that are slightly moist or sticky and which clog a screen.

If you require a fine ground material in your process of manufacturing and are having trouble producing it economically, investigate the Raymond System with Air-Separation.

It will cost you nothing and we may be able to show you where you can save money.

Remember the Raymond System has produced economies for some of the largest Industrial Concerns of the country.

The coupon
will bring
you our
catalog

RAYMOND BROS. IMPACT PULVERIZER COMPANY

1301 North Branch Street, CHICAGO, ILL.

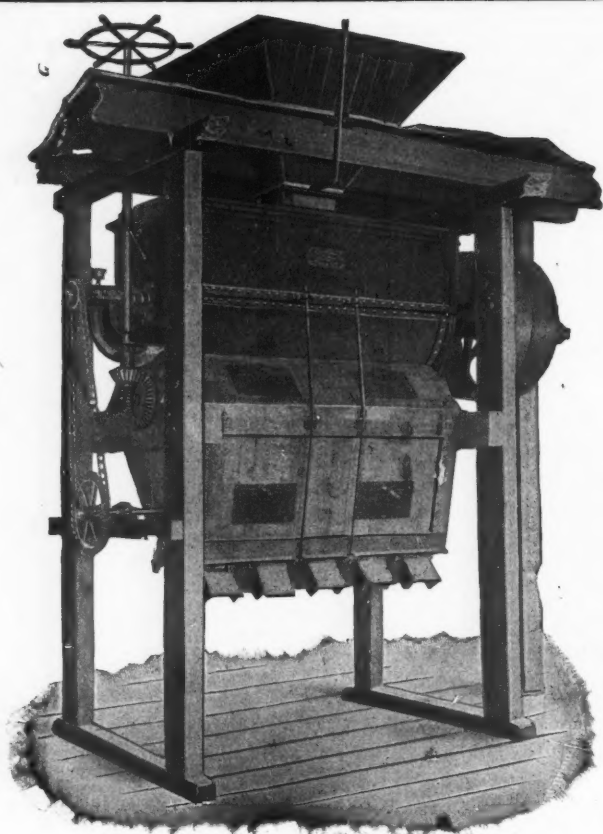
Please send us your literature.

NAME

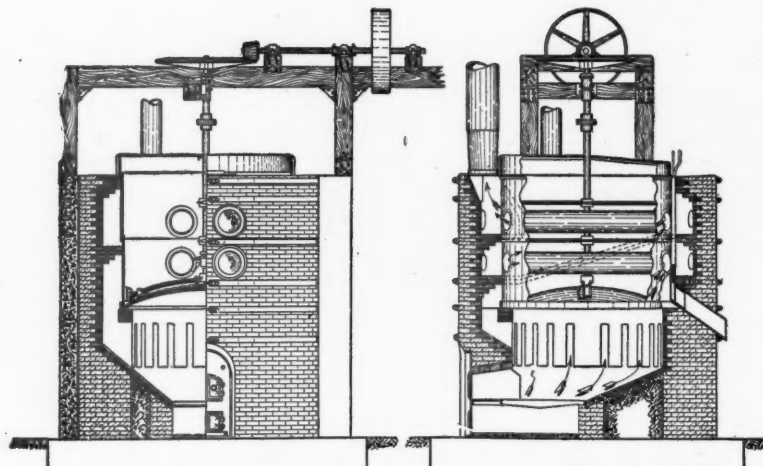
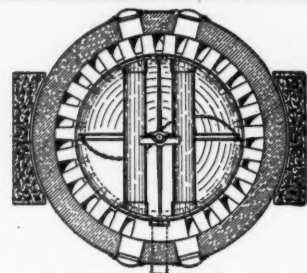
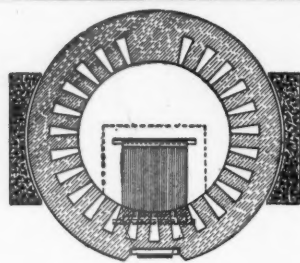
STREET

CITY..... STATE.....

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



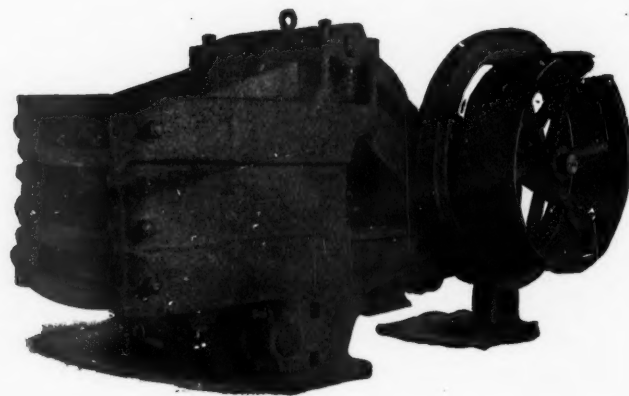
Enterprise Noiseless Mixer



Ehram Calcining Kettles—Built in 5 sizes—6-8-10-12-14 feet in diameter, having capacity of from 3 tons to 20 tons to the charge



Horizontal and Vertical Heavy Duty Grinding Mills



Jaw Crushers Built in all sizes up to 24" x 34" jaw opening. Rotary Fine Crushers in sizes up to 42" inside diameter.

The J. B. Ehram & Sons Mfg. Co., ENTERPRISE, KANSAS

Manufacturers of Plaster Mill Machinery, Conveying Elevating and Power Transmission Appliances

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

"GATES" GYRATORY BREAKERS

OVER 7,000 IN ACTUAL OPERATION

View Showing Partial Stock of Gyratory Crusher Parts.

To
Facilitate
Complete
Shipment of
Machines



For
Convenience
Of Those
Operating the
"Gates"

ALLIS-CHALMERS MANUFACTURING CO.

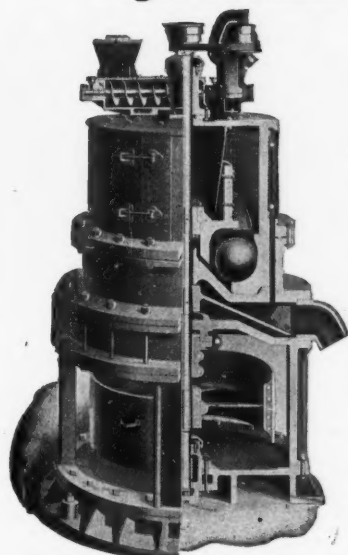
MILWAUKEE OFFICES IN ALL PRINCIPAL CITIES WISCONSIN

For All Canadian Business Refer to Canadian Allis-Chalmers, Ltd., Toronto, Ont.
FOREIGN REPRESENTATIVES—Chile and Bolivia: Mark R. Lamb, Huerfano 1157, Casilla 2653, Santiago, Chile. Europe, East Indies, etc.: H. I. Keen, 732 Salisbury House, London Wall, London, England. South Africa: Herbert Ainsworth, P. O. Box 6659, Johannesburg, South Africa. Australia: Frank R. Perrot, 883 Hay St., Perth, W. A., and 204 Clarence St., Sydney, N. S. W. South America, China, Philippine Islands, Japan: American Trading Co.

The Fuller-Lehigh Pulverizer Mill

A Complete Self-Contained Unit

The most economical mill for producing
Agricultural Limestone



Reduces lump rock to
20, 40, 60, 80, 100,
or 200 mesh.
Requires no outside ac-
cessory equipment.
Requires no overhead
shafts, drives or
screens.
All material discharged
from mill is finished
product.
No inside journals or
bearings.
No inside lubrication.
Uniform feeding sys-
tem.
Constant and free dis-
charge.
Low installation cost.
Low operating cost.
Low lubricating cost.
Dustless operation.

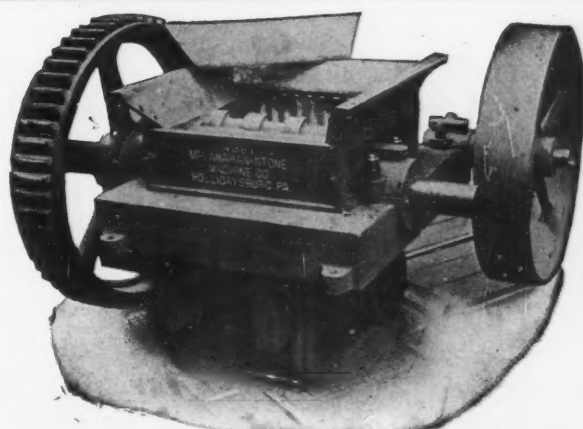
Built in sizes to meet the requirements of your trade. Grinds rock to meet the specifications of all Agricultural Experiment Stations.

SEND FOR CATALOG NO. 70

Lehigh Car, Wheel & Axle Works

Main Office and Works: Catasauqua, Penna.

BRANCHES: Pittsburgh: Farmers Bk. Bldg.
New York City: 59 Church St.
Chicago: McCormick Bldg.



**OUR SINGLE ROLL CRUSHER
IS AS SIMPLE AS CAN BE**

Is easily fed, makes less fines than either a Gyratory or Jaw. Capacity 5 to 500 tons per hour. For crushing Limestone, Dolomite, Hard Rock, Phosphate, Cinders, Etc. Screens of all descriptions. Washers for dirty stone.

Ask for Information

McLANAHAN-STONE MACHINE CO., Hollidaysburg, Pa.

**BACON \ FARREL
ORE & ROCK
CRUSHING \ WORLD KNOWN
ROLLS-CRUSHERS**

EARLE C. BACON, ENGINEER
HAYMEYER BUILDING, NEW YORK

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Crushing and Grinding Equipment

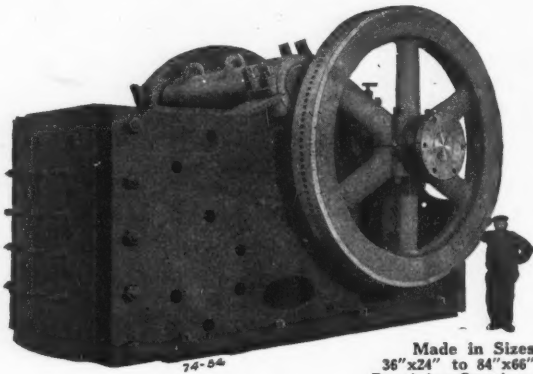


Strongest and simplest crusher in the world, therefore cheapest to operate

McCULLY Gyrotory Crusher

In every detail of construction, high-class design, best selected materials, and skilled workmanship have been combined to produce the most durable, the highest quality crusher. All bearings are provided with efficient and simple lubricating devices, not likely to get out of order and requiring but little attention.

The main shaft is suspended from the point of no gyration, reducing the wear of the parts and the power required to operate the machine.



Made in Sizes
36"x24" to 84"x66"
Receiving Openings

The crusher is provided with exceptionally large bearing surfaces and the steel gears which minimize shut downs and expensive repairs.

Our Catalog PM 4-16 fully explains and illustrates the superior features and construction of the McCully Gyrotory Crushers. Write for it.



Built
in the Size
to Meet Your
Requirement

SUPERIOR Jaw Crushers

have an enviable record during five years' operation on trap rock. A dozen machines of this type are giving eminent satisfaction. Cast-steel construction throughout, spring supported pitman, adjustment for changing product. Manganese steel wearing parts; engine type flywheels; automatic lubrication; water cooled main bearings.

WORTHINGTON PUMP AND MACHINERY CORPORATION

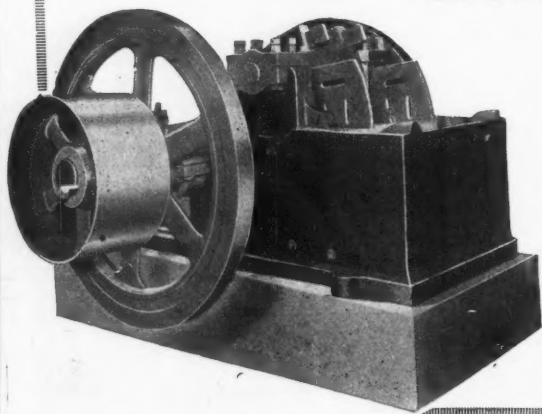
115 Broadway, New York. Power & Mining Machinery Works: Cudahy, (Suburb of Milwaukee) Wisconsin
Branch offices in all principal cities

M420-4

*A Comparison of costs
is always valuable*

Why not write us
today to explain
the economical
features of the

**Blake Type
Crusher**



Webb City & Carterville Foundry and Machine Works
WEBB CITY, MISSOURI



FIFTY-FOUR HOLES. AVERAGE DEPTH NINETY-TWO FEET.
FIRED BY MEANS OF CORDEAU-BICKFORD DETONATING FUSE

CORDEAU-BICKFORD

An Instantaneous Detonating Fuse
for SAFETY and EFFICIENCY

Particularly adapted to well drill shooting where large columns of explosives are fired, where it is desirable to break the charge in the drill hole, or where a great many holes are to be fired at one time.

Cordeau is run from the top to the bottom of the drill hole in contact with the explosive charge,—one continuous detonator.

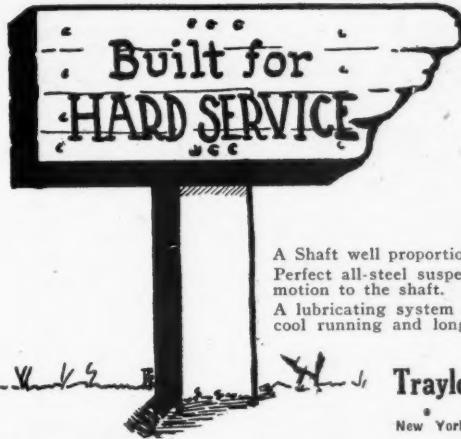
RESULTS: Complete detonation, quicker detonation, greater shattering effect, lower secondary costs, substitutes a detonator which is insensitive to shock and friction in place of the electric caps.

Write for Cordeau booklet and Deep Well Blasting

The ENSIGN-BICKFORD COMPANY
SIMSBURY, CONNECTICUT

ORIGINAL MANUFACTURERS OF SAFETY FUSE. ESTABLISHED 1836

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TRAYLOR Gyratory Crushers

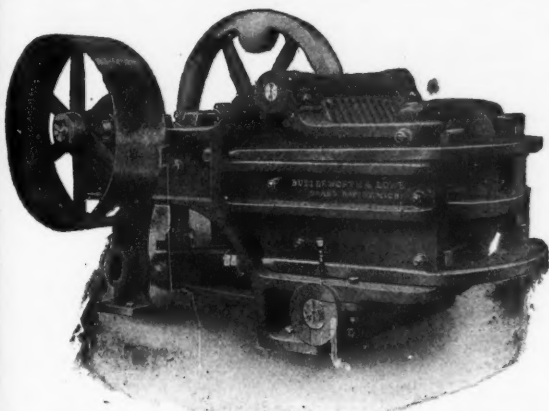
Having an Eccentric of Greater Dimensions Than Others, Last Longer, Use Less Power and Require Less Attention

A Shaft well proportioned and bigger than others.
Perfect all-steel suspension at the point of least motion, which assures a perfect rolling motion to the shaft.
A lubricating system that forces all dirt and dust from the eccentric cavity, insuring a cool running and long lived eccentric.

Send for Descriptive Bulletin G-3

Traylor Engineering & Manufacturing Company

MAIN OFFICE AND WORKS: Allentown, Pa., U. S. A.
New York Office: 24 Church St. Western Office: Salt Lake City, Utah
Chicago Office: 1414 Fisher Bldg.



JAW AND ROTARY CRUSHERS

For all Rocks and Ores Softer than Granite

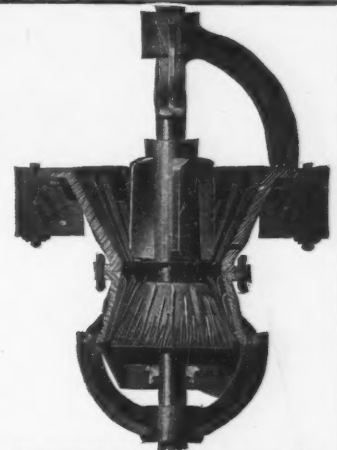
GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

SPECIAL CRUSHER-GRINDERS FOR LIME.

Butterworth & Lowe

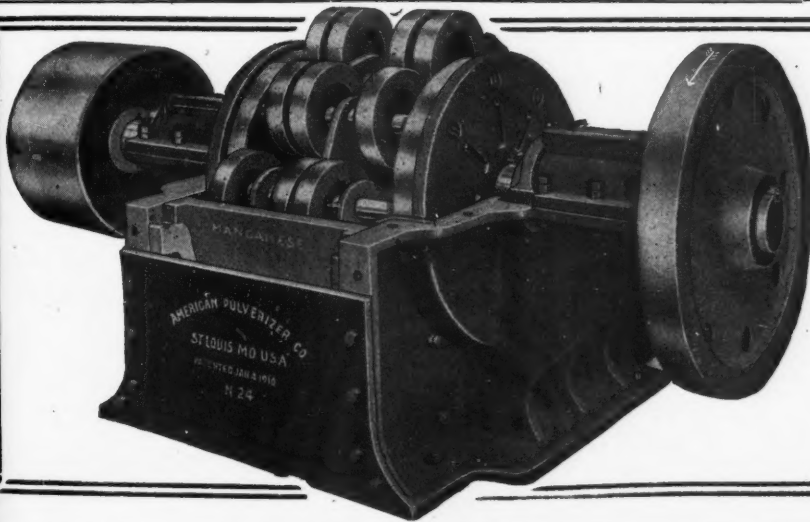
17 Huron Street,

Grand Rapids, Mich.



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42"

20" to 42" inside diameter. Many variations.



Pulverizing Satisfaction Is Based on Service

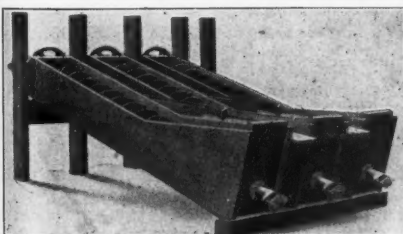
—THE— American Ring Pulverizer

Affords the utmost in value and is the foremost in Pulverizer Construction and Efficiency

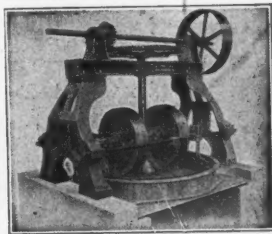
Buy One Try It Pay Afterwards

WRITE US YOUR NEEDS—
WE WILL SEND PARTICULARS

AMERICAN PULVERIZER CO., East St. Louis, Ill.
Eastern Sales Office, 207 Fulton Bldg., Pittsburg, Pa.



Sand Washers

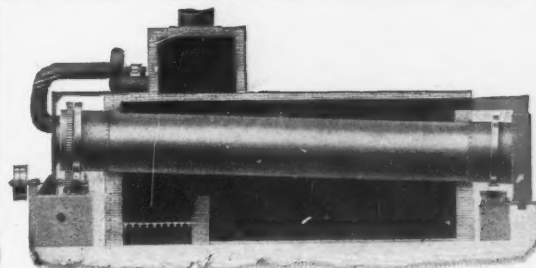


9-Foot Dry Pan

LEWISTOWN FOUNDRY & MACHINE CO.
LEWISTOWN, PA.

Builders of heavy duty crushers and glass sand machinery
Glass sand plants equipped complete

WRITE FOR PRICES AND CATALOG



We make the largest variety of
Mechanical Dryers

Write for
Catalog
No. 16

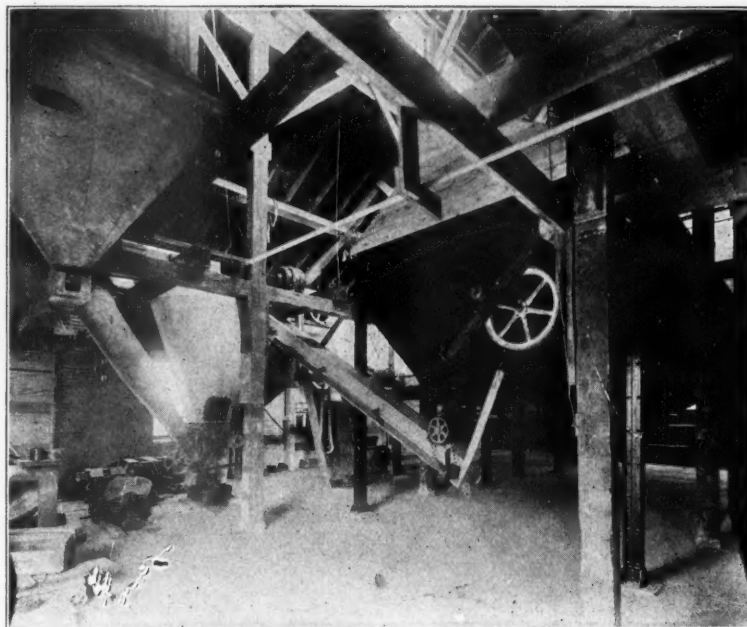
We are also Engineers and Manufacturers of
Car Hauls
Crushers and Pulverizers
Drop Forged Chain
Elevators and Conveyors
Soft Mud Brick Machinery
Feeders
Mining Machinery
Mixing Machinery
Sand Plants
Screens

THE C. O. BARTLETT & SNOW CO., Cleveland, Ohio

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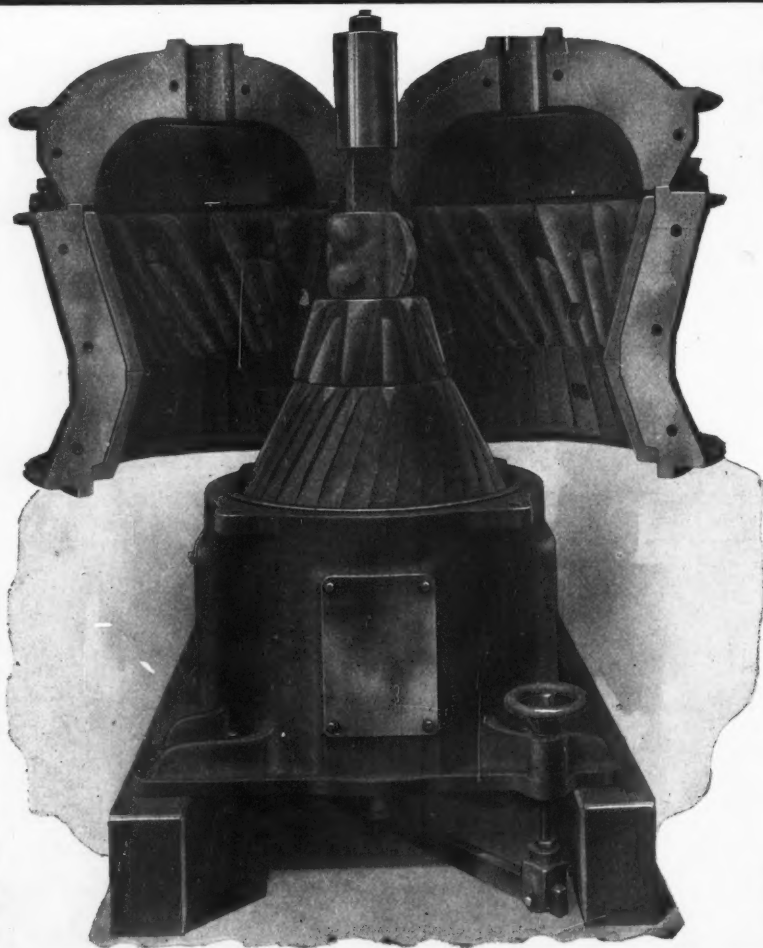
Perfection

in product and manufacturing processes our aim; special equipment has been designed and built to carry out this idea.



Storage and Blending Bin, capacity 100 tons. Pulverizer, Air Separator and Sacking Bin, capacity 30 tons per day. Installed at Port Clinton, Ohio, plant.

The National Retarder Company 930 North Halsted St. **Chicago, Illinois**
Mills at Port Clinton, Ohio, Webster City, Iowa



STURTEVANT OPEN-DOOR ROTARY FINE CRUSHERS

PATENTED

Reduce Rocks of moderate hardness to $\frac{1}{2}$ inch and finer. For Lime, Gypsum, Shale, Clay, Clinker, Coal, etc., they have no equal. Open the doors and every wearing part is exposed for inspection, renewal or to remove iron or other foreign substances which often get into and stop such machinery.

Rotary Crushers are slow speed, durable machines, adjustable for fine or coarse work while running, require small power and no special foundation.

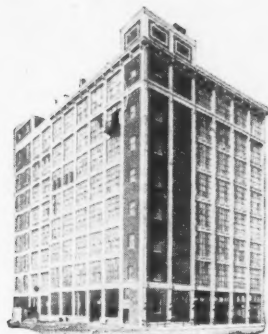
Hundreds in use.

Sold on approval.

Send for Catalogue No. 63.

STURTEVANT MILL CO.
HARRISON SQUARE BOSTON, MASS.

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Long Island City Plant
of the Packard Motor Co.
All floors are treated with
R. I. W. Cement Filler
and Cement Floor Paint.

Packard's Floors Are Protected

—The surfaces cannot scuff off—there is no danger of motors, machinery, bodies and upholstery being ruined by fine cement grit.

—The floors are water, oil and acid proof—the cement cannot soften and crack.

Packard selected upon the evidence submitted, and all cement floors are made dustless and wear-proof with

R.I.W. CEMENT FILLER
R.I.W. CEMENT FLOOR PAINT
REG. U.S. PAT. OFF.

These preparations are used the world over in plants where efficiency is the highest. They seal the porous surfaces and prevent dusting, even under the most stringent conditions of foot and truck traffic. They make cement floors that look better and last longer. Made in twelve colors.

Write for descriptive literature, Dept. 12

Toch Brothers

Technical and Scientific Paint Makers Since 1848

320 Fifth Avenue, New York

WORKS: NEW YORK LONDON, ENG. TORONTO, CANADA

R.I.W.
REMEMBER IT'S WATERPROOF
R.I.W.

STEEL NEED NOT RUST!
WOOD NEED NOT ROT!
NOR CONCRETE DUST!

REG. U.S. PAT. OFF.



WILLIAMS FINE GRINDERS

ADAPTABILITY—

The Williams Universal Fine grinder illustrated above can be used wherever raw material, such as limestone, gypsum, clay, coal or shale, is ground to a fine product. These machines will take these materials in cubes 2" and under and reduce the same in one operation to a fineness of 95% passing through 20 or 30 mesh sieve, *without the assistance of outside screens or separators*. Therefore, the Cement maker, the Gypsum grinder, the Quarry operator desiring to make Agricultural limestone, can all use these machines to advantage.

ADJUSTABILITY—

The Williams Universal Fine grinder is adjustable in more ways than one. Adjustments to the wearing parts are of vital importance to a grinding mill, the Williams mill contains more adjustable features than any other similar mill. In addition to the hand wheel adjustment of the grinding plate which allows the operator to control the fineness of his finished product at all times, and *while the mill is in operation*, this mill is also provided with adjustable discs and hammers, insuring long life to these parts, and an absolutely uniform product at all times.

ACCESSIBILITY—

This is the third important point in favor of the Williams Universal Fine grinder. Look at the illustration above, note how the throwing back of the cover exposes the entire inside of the machine, four bolts only need to be removed and the operator is ready to proceed with the renewals of parts, inspection of mill, etc. Cage, Hammers, Discs, in fact the entire inside of the machine is quickly accessible, which, as every operator of grinding machinery knows, is an all important point, especially when repairs have to be made quickly.

Further details regarding these mills will be found in catalog No. 4.

The Williams Patent Crusher & Pulverizer Company
General Sales Dept., Old Colony Bldg.
CHICAGO

Plant:
ST. LOUIS

67 Second St.,
SAN FRANCISCO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



This picture is one-half the actual size of the Bates Patented—dust-proof—helical gear—Wire Bag Tying Tool for twisting

—BATES UP SET TIES—

(The Tie That Binds)

onto bags already filled. For tying empty valve sacks to be filled through the famous

“Bates Valve”

we make bench and power tyers.



This is actual sized picture of a 5½ in. upset tie. We make these ties in various lengths from 3¼ in. to 9¾ in., and can deliver them in any quantity up to a million promptly.

BATES VALVE BAG CO. 1834 McCormick Bldg.
CHICAGO, ILL.

Knowledge from 20 Years' Experience Free to You

For two decades we have been actively engaged as engineers and specialists in the sand and gravel washing field, and during this time we have solved successfully many difficult problems. The knowledge this experience has given us should be invaluable to the prospective builder of a gravel washing plant. Our advice is free for the asking. Why not get the benefit of this experience?

DULL Gravel Washing Machinery



is known the country over and has gained the reputation among progressive producers as being the most efficient, economical and successful equipment of its kind.

If you will write for the interesting Dull booklet, “Plants for Washing Sand and Gravel,” you will learn, for example, the advantages of the Dull Inclined Conical Washing Screens, Dull Conical Sand Separators, Dull Cableway Excavators, etc.

Send for this complete booklet at once

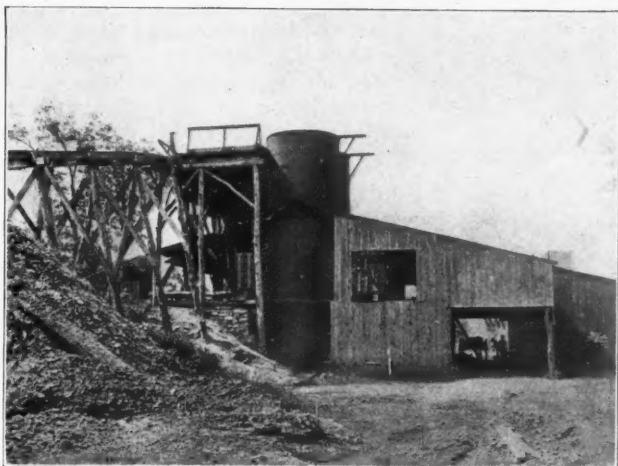
THE RAYMOND W. DULL CO.

1914 Conway Building

CHICAGO, ILLINOIS

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

An Interesting Installation



PLANT OF STEACY-WILTON CO., BITTERING STA., PA.

THIS photograph illustrates an interesting application of Keystone Kilns to an abutting plant of old fashioned pot kilns. An application of a timbered run-way for elevating the stone to feed the kilns is also illustrated.

We are Stone, Lime and Hydrating Plant Specialists
"Success Builders to the Limestone Industry"

Steacy Schmidt Mfg. Co.
York, Pennsylvania.

MANUFACTURERS OF THE FAMOUS KEYSTONE KILNS—
210 NOW IN USE

ROCK PRODUCTS
and
BUILDING MATERIALS

is read by both

PRODUCERS AND
DEALERS

Advertising in It Pays!

VULCAN



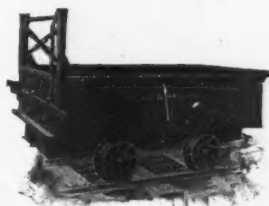
BUILDERS of Locomotives of all gauges and every description adapted for contractors' use, grading new lines of railroad, service in quarries, yard switching, movement of cars and material about industrial plants. Also for longer hauls through sugar cane plantations and lumber tracts. Particular attention given to the design of locomotives when conformity to special conditions of service is essential.

Rotary Kilns for the calcining of
Lime, Cement, Dolomite, Magnesite
etc., together with their auxiliary
equipment of Dryers and Coolers.

Vulcan Iron Works
Wilkes-Barre, Pa.



**Lime Hydrators, Kilns,
Calcining and Quarry Cars**



No. 274
End Dump Quarry Car.



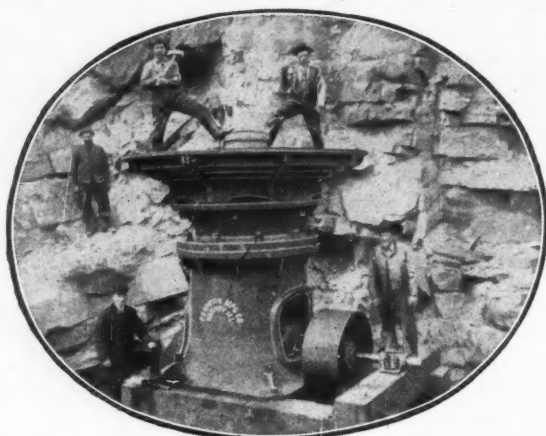
No. 217-H Hocker Side Dump Car
Also made in end dump. Above
car made for leading with
steam shovel.

Reduce Your Handling Costs
BY USING
ATLAS CARS AND LOCOMOTIVES

Where a trolley wire or third rail is undesirable investigate our storage battery locomotives. Made in several styles and sizes. Cars to suit every requirement.

THE ATLAS CAR & MFG. CO.
909 Marquette Road
Department 6
Cleveland, Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Where the Crushed Rock Demand Is Biggest That's the Austin Gyratory Field

Measured either by quantity of output or the total cost of production Austin Gyratory Crushers excel in dollar-saving economy. The reasons are they embody every good feature of other gyratory crushers and they possess many important advantages which are exclusive.

The accompanying illustration shows a No. 7½ Austin installed at Bellevue, O., since 1901. It is the record of performance of installations of this kind that has built the Austin reputation.

Austin Gyratory Crushers are built in eight sizes, 100 to 5,000 tons daily capacities.

Write for Complete Catalog

Austin Mfg. Company, Chicago

New York Office: 50 Church Street

We Manufacture: Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders and Street Cleaning Machinery

The ALL-Steel K-B PULVERIZER Saves Power Costs

It cuts down your running expenses by using less power to do your work. Consuming only 10 h.p.-15 h.p. the No. 1 machine will reduce 4-7 tons of stone, or 8-13 tons of lime per hour from 3" to dust. The No. 2 K-B Pulverizer consumes only 20 h.p.-25 h.p. to reduce 10-15 tons of stone or 20-25 tons of lime per hour.

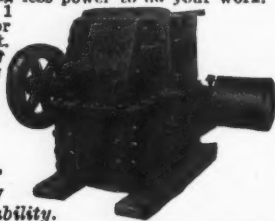
Write today for full details to the

K-B PULVERIZER CO., Inc.

86 Worth St., New York City

Built for Service and Durability.

THE ALL-STEEL K-B PULVERIZER SAVES POWER COSTS



Haiss Digging Wagon Loaders

(PATENTED)



dig and load stone, sand, gravel, ashes, coke, coal, etc., at a speed of one yard a minute, and save ten cents a yard over hand labor. Used by:

Union Paving Co.
Wisconsin Granite Co.
Brooklyn Sand & Gravel Co.
Cedar Hill Sand Co.
Chas. Warner Co.
Degnon Contracting Co.
Cleveland Trinidad Paving Co.

and hundreds of other concerns of like magnitude.

Send for catalogue and cost comparisons NOW.

GEO. HAISS MFG. COMPANY, INC.
146th Street and Rider Avenue
NEW YORK CITY

Concentration

upon a single article means that a given amount of resources and brains are devoted entirely to the improvement of that article. It is logical to suppose such a commodity to possess advanced features. This is true of the

SAUERMAN Dragline Cableway EXCAVATORS

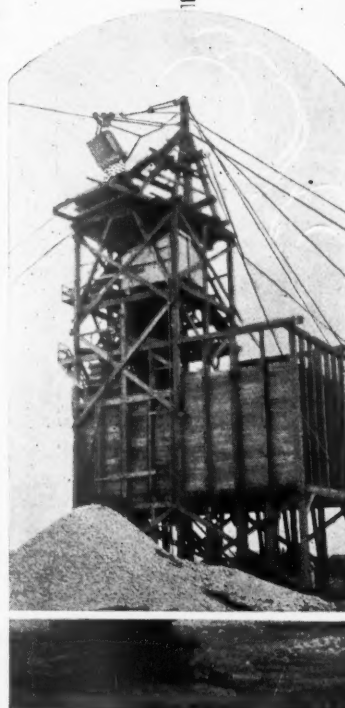
They are unexcelled as a simple and economical means of handling sand, gravel, clay, earth, coal and similar materials. One of the many worth-while features is the fact that no back cable is required to return the bucket to the loading point.

Our catalogue tells the whole story by word and picture. Send for it. It's free!

WRITE TO
SAUERMAN BROS.

Manufacturers and Engineers
1140 Monadnock Bldg., Chicago

Manufacturers dragline cableway excavators, power scrapers and cableway accessories.



"Plymouth" at Alliance Brick Co. Shale Bank

Hauls 7½ Tons Shale Up an 8% Grade—

Pulling 7½ tons of shale at a trip up an eight per cent grade is a pretty good task for ANY locomotive ten hours a day, but the Alliance Brick Co., of Alliance, Ohio, is performing this feat daily with a Plymouth Six-Ton Gasoline Locomotive and says it could haul much MORE if the duty required.

Only seven gallons of gasoline per ten-hour day is used by this locomotive, which, with the common day-laborer employed, makes a far lower cost of operation than the Alliance's former system.

The Plymouth Friction-Drive Gasoline Locomotive Cuts Haulage Costs One Half

The Plymouth costs one-third to one-half less to buy than horses, steamer, electric, compressed air, or any other gasoline locomotive—less to install than horses, electric or compressed air—less to operate—less to maintain in repairs, and, weight for weight and horse power for power, gives greater drawbar pull than any other system that is on the market.

THIS BOOK TELLS It has cost data, charts and tables, showing the history of thirty-four installations. It ought to be in the hands of every one interested in haulage. A FREE copy is yours for the asking.

THE J. D. FATE CO., 210 Riggs Ave., PLYMOUTH, O.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

For the High Cost of Building try our distinctive type of Metal Lath. It gives the Lowest Cost of the Finished Plaster Surface.

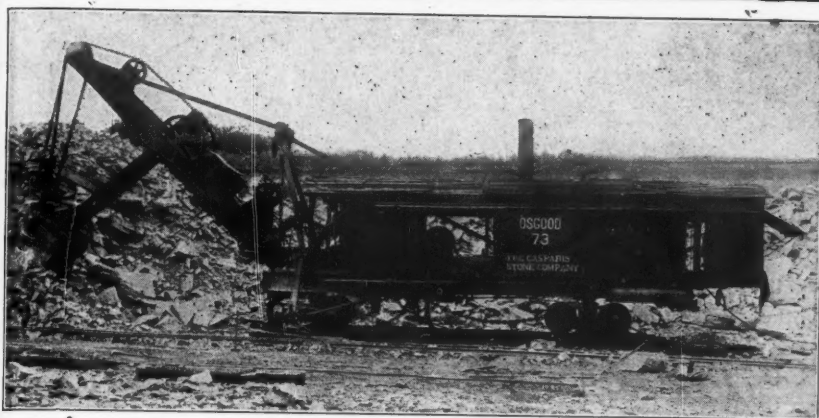
GET SAMPLE AND DETAILS AT ONCE



THE
BOSTWICK
Steel Lath
Co.

*A Catalog for
the Asking*

NILES, OHIO



Osgood "73" in heavy quarry work.

You will do better with an **OSGOOD**
OSGOOD "73" 3½-yd. STEAM SHOVEL

is the practical shovel for heavy stone quarry work.

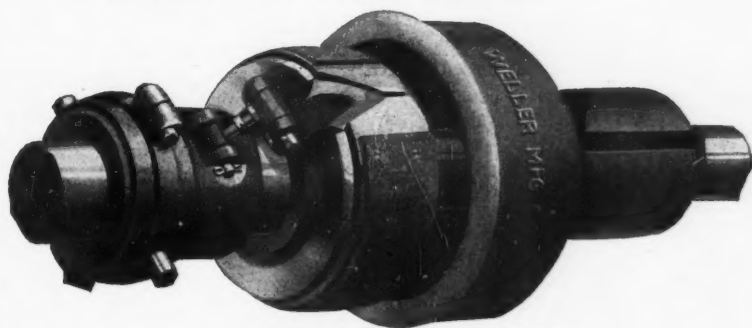
Shipping weight 82 tons.

This shovel has all the latest features found in good steam shovel construction.

Write us for specifications today

THE OSGOOD COMPANY, Marion, Ohio

The Weller Expansion Friction Clutch



Clutch pulled apart to show simple construction

The Weller Expansion Friction Clutch is the simplest — having fewer parts than any other clutch with but one point for adjustment.

It is fool proof, needs no oil, no attention, and even when covered with dust or dirt, or with water dripping on it, produces the required service.

It is the most powerful for size, giving practically the positive action of a jaw clutch plus the convenience of a friction clutch.

The Weller Expansion Friction Clutch is not limited to any one class of work, but appears to the best advantage under the worst possible conditions, such as cement plants, stone and ore crushing plants, coal handling equipments, smelters, cotton seed mills, starch factories, wire drawing work, etc.

WRITE FOR GENERAL CATALOG P-27



NEW YORK
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BALTIMORE
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Weller Manufacturing Co.
Chicago, U. S. A.

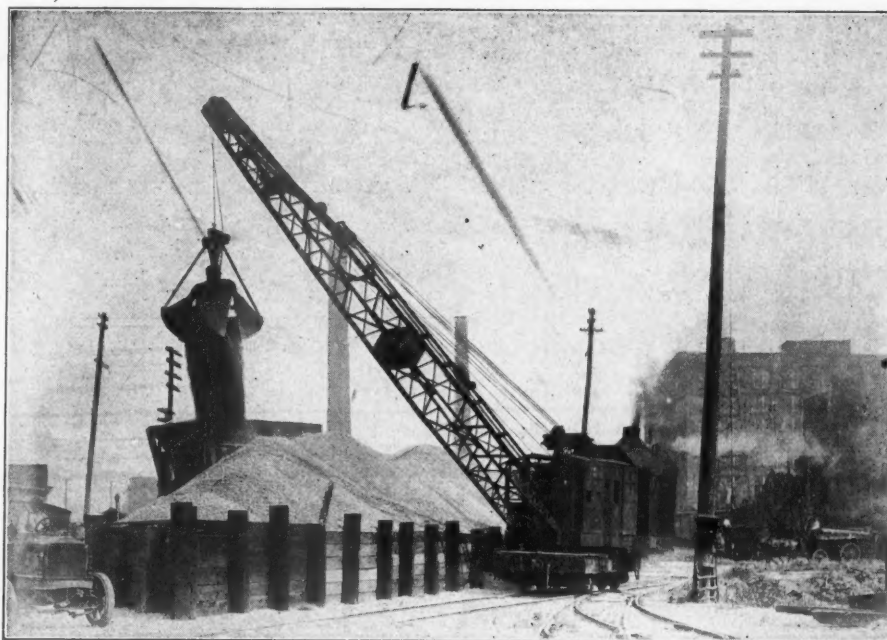
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SALT LAKE CITY
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Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Why Not Modernize Your Yard?

You may have the latest type of Crushers, Auto Trucks, etc., but if your equipment does not include a



McMYLER INTERSTATE CRANE

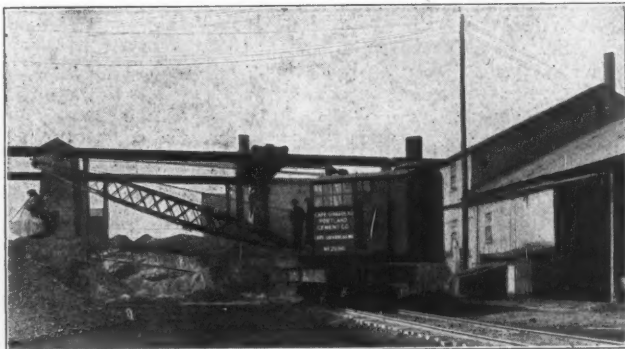
to handle materials, shift cars, place your screens, load trucks and a hundred other things you are losing a legitimate part of your profits we will be glad to submit figures if you are interested in improving your yard conditions. Bulletin on request.

Address inquiries to the nearest office

The McMyler Interstate Co., Dept. P-5, Cleveland, Ohio

Chicago, New York
London

A Comparison of Cranes



IN order to procure the very best crane on the market, the Cape Girardeau Portland Cement Co. sent an engineer to inspect and examine every make of Locomotive Crane they were considering—and we've painted their name on an "Ohio" Crane.

They have very severe service and they needed the best. Ask them if they got it.

90% of the "castings" are basic open hearth steel

Write for Catalogue No. 11

Ohio Locomotive Crane Co., Poplar St., Bucyrus, O.

30 Church St. New York
Fleher Bldg. Chicago
Home Life Bldg. Washington, D. C.
Oliver Bldg. Pittsburgh

Edward R. Bacon Co. San Francisco
Contractors Equip't Co. Seattle, Portland
N. C. Waipole Birmingham, Ala.
950 Rockefeller Bldg. Cleveland, O.

Kelly, Powell, Ltd. Winnipeg, Montreal

YOUR PAN NEEDS

THIS pan is the identical pan required for your plant and it should speak to you convincingly of our pan quality. It has put many Sand-Lime Brick Plants on a paying basis and will make money for you. There is no line of pans made which will compare with the "Built Right, Run Right" line and your needs can be fully taken care of from our peerless line. We build pans with a range in size and capacity to meet any need. These pans are adapted for all the work that any pan will do. We have them in both belt and motor drive and will be pleased to give you any points on our pans that you may inquire about.

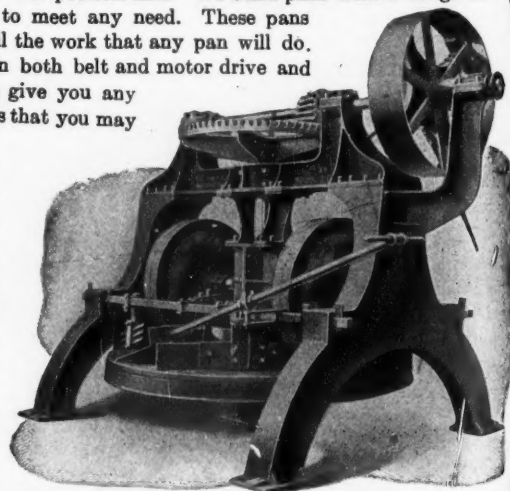
A poor pan is an expensive proposition. Its inefficiency shows in the quality of your product and the size of your repair bills. It also limits your capacity by handicapping the rest of the equipment. Real

economy would suggest that your pans be the best possible. We will be pleased to talk pans or any other equipment with you.

We Build Complete Equipments for
Sand-Lime and Clay Brick Plants

The American Clay Machinery Co.

Willoughby, Ohio, U. S. A.



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



There's Where Your Profits Go!

With Labor Costs rising daily and competent help becoming more difficult to obtain, Sand and Gravel Dealers cannot afford to load materials from ground storage by hand.

The most Efficient and Economical Method of doing this work is to use That Modern Labor Saver and Profit Booster.

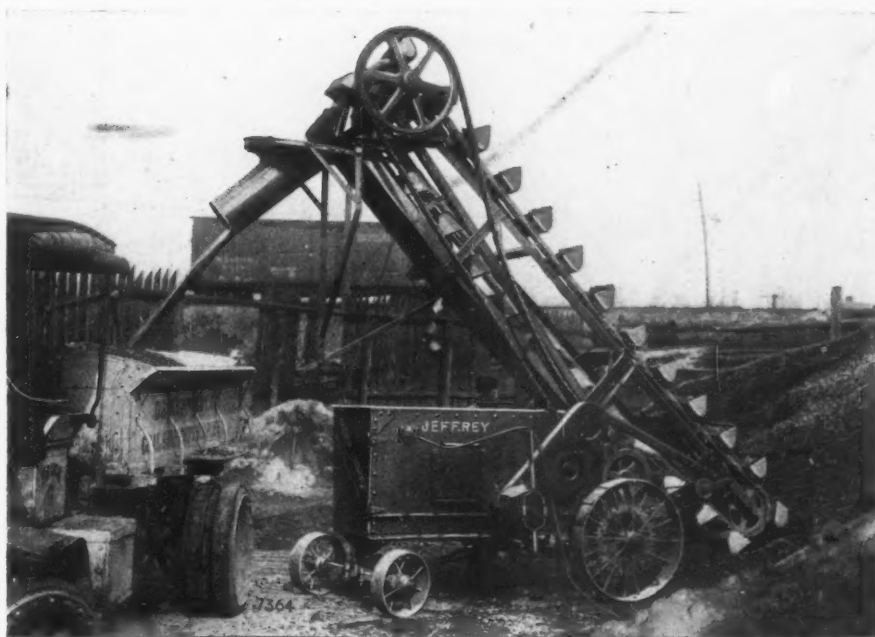
The Jeffrey Self-Propelling Wagon and Truck Loader

The Jeffrey Loader Loads Sand, Gravel or Crushed Stone at the rate of 1 to 1½ cubic yards per minute.

Saves 5 to 10 Men Daily

Operated entirely by one man. Eliminates long waits between loads. Enables trucks and teams to make more trips daily at less expense.

Every day's delay in ordering a Jeffrey Self-Propelling Loader means Added Expense and Decreased Profits for you. Tell us about your loading conditions and ask for copy of Bulletin No. 177-A.



The Jeffrey Loader pictured above is the Collapsible Type, Motor Driven, fitted with swivel chute, handling gravel at the yard of the D. J. Kennedy Co., Pittsburgh, Pa. They have handled their entire output of Sand, Gravel and Coal for the last two years with two (2) Jeffrey Self-Propelling Loaders. These machines have paid for themselves several times. Scores of others have found the Jeffrey Loader a highly profitable investment.

The Jeffrey Mfg. Co., 935 N. Fourth Street, Columbus, Ohio

Five Miles Per Gallon; 3½-Ton Load

Five miles per gallon is not an unusual record for the Duplex. It is average Duplex gasoline mileage.

The Duplex Four-Wheel Drive Truck, shown in the accompanying photograph, hauled 3½ tons of crushed stone ten miles, made ten stops and consumed but two gallons of gasoline.

Unloaded the truck's record was six miles per gallon.

The motor was running continuously.



Duplex 4-Wheel Drive Utilizes All Motor Power

All four Duplex wheels *work*.

The front wheels *pull* with just as much driving power as the rear wheels *push*.

As a result there is *no power wastage*.

Utilization of all power—*all energy generated by the motor*—explains the wonderful haulage performances of the Duplex.

The Duplex, loaded to capacity—*3½ tons*—has the additional power to pull from two to three trailers through snow, sand or loam, or up grades that any rear wheel drive truck would find difficult to negotiate with only its capacity load.

Less motor power is used by the Duplex than by rear wheel drive trucks of similar capacity—because the motor

power in the Duplex is applied with twice as great effect—with *double efficiency*.

Operating costs are greatly reduced as a result.

The Duplex travels 30 per cent farther on a gallon of gasoline than rear wheel drive trucks of equal weight and motive power.

Duplex tire mileage is nearly one-third greater.

And the extremely simple construction of the Duplex *reduces up-keep expense* to the minimum.

Our 1917 catalog will interest you. It explains in detail how the Duplex is built to lower haulage costs. Send for it today.



ADDRESS ALL COMMUNICATIONS TO DEPT. 124
DUPLEX TRUCK COMPANY
LANSING MICHIGAN



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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIX

CHICAGO, ILL., APRIL 22, 1917

Number 12

Precedent Points to Big Business During War

The Lesson of the Spanish-American War Is That Uncertainty Prior to Declaration of War Is to Be Followed by Healthy Business During Hostilities and Tremendous Increase at Close of War

By Allen E. Beals, Secretary The Dow Service, New York

PRECEDENT as well as current conditions prove that war will not halt building construction.

On April 23, 1898, just after Congress had affirmed that a state of war existed between this country and Spain, New York Stock Exchange

prices held firm despite the fact that there was no such gold surplus to back up government credit as exists today. At that date there was talk in congress of creating a gold reserve of \$300,000,000 to \$400,000,000. Today, according to George E. Roberts, assistant to the President of the National City Bank, there is approximately \$2,250,000,000

in the government treasury, \$450,000,000, including gold certificates, in the Federal Reserve Banks and \$460,000,000, including gold certificates in the national banks, not to mention funds in state banks and trust companies.

Uneasy Before War.

In 1896, two years before war developed with Spain, 3,838 permits were granted by New York building bureaus for construction work estimated at \$84,111,023 in cost. In the year immediately preceding the war there was a noticeable uneasiness in the building market, as conditions became more and more unsettled and financiers became firmly convinced that a break between this country and Spain must come. Yet there was only a loss of 689 building permits in that year, but with a decline in estimated value of \$12,221,258.

Business Good After Declaration of War.

In 1898, however, with war being declared, exactly at the opening of the building season, as in the present instance, there was a gain of

467 permits issued by the building departments of the five boroughs, with a gain in estimated value of \$11,781,075. In other words, the building market two years before the war was declared netted 3,835, as against 3,516 new building permits in the year war was being carried

on, or a mere decline of 311 new building projects, representing a difference between an estimated cost in 1896 of \$84,111,023 as against \$83,668,840 in the war year, an insignificant drop of only \$442,183 in the five boroughs. In that year renting conditions were not anywhere near as favorable to building expansion as they are at present, and

THE SILVER LINING



Drawn by Will Hope

building materials were decidedly firm and tending toward higher levels, which they reached in the following year.

In the first three months of 1898, 686 permits for new buildings were issued and 624 were completed in Manhattan and the Bronx. In Brooklyn in the same three months 811 new buildings were authorized to proceed and 678 progressed to completion. In 1897, one year before war was declared, Manhattan and the Bronx reported 651 new building permits, of which 565 proceeded to completion, and in Brooklyn there were 762 buildings begun with only 514 moving to completion without interruption.

Big Boom After War.

Instead of a decline in building construction pending readjustment of finances and other matters following the war there was a tremendous impetus in building construction. Far-sighted, well-financed builders foresaw what was coming, even while the war raged, which accounted for the remarkable strength of the building market in 1898. In 1899

NEWS of the TRADE

BUILDING SITUATION SATISFACTORY.

Building operations throughout the country are satisfactory in volume from a rational viewpoint. The general impression among architects and contractors is that business is quiet; prospective work may not be specially insistent at this time. But the statistics show that, as compared with a year ago, there is only a moderate decline. February showed a decrease of 5 per cent, as compared with February last year. The March figures show the same shrinkage, as compared with March, 1916. But the totals for last month are over 50 per cent greater than for February, which is the normal trend, as the active building season approaches.

Building permits, issued in 111 principal cities of the United States during March, as officially reported to the American Contractor, Chicago, total \$79,284,262, as compared with \$83,624,502 for March, 1916. The total number of building permits issued was 23,406, compared with 25,264 for March last year.

It is noteworthy that a greater number of cities show gains than losses, 63 increasing over a year ago and 46 decreasing, two holding stationary. The larger cities make the more unfavorable showing, which is no doubt explainable by the fact that in these cities a larger percentage of the buildings are of steel construction and that because of the great scarcity it is almost impossible to obtain structural shapes. New York shows a comparative loss of 20 per cent; Philadelphia, 24 per cent; Boston and vicinity, 30 per cent; St. Louis, 27 per cent; Pittsburgh, 31 per cent. Chicago neither gains nor loses. There are some very notable gains, as will appear in the statement below:

City	March, 1917	March, 1916	Per cent.
Albany, Ohio	257	1,756,110	257
Albany, Pa.	257	1,756,110	257
Albany, N. Y.	257	1,756,110	257
Albany, N. J.	257	1,756,110	257
Albany, N. C.	257	1,756,110	257
Albany, Ga.	257	1,756,110	257
Albany, Fla.	257	1,756,110	257
Albany, Ark.	257	1,756,110	257
Albany, La.	257	1,756,110	257
Albany, Miss.	257	1,756,110	257
Albany, Tex.	257	1,756,110	257
Albany, Okla.	257	1,756,110	257
Albany, Mo.	257	1,756,110	257
Albany, Ill.	257	1,756,110	257
Albany, Ind.	257	1,756,110	257
Albany, Ky.	257	1,756,110	257
Albany, Tenn.	257	1,756,110	257
Albany, Va.	257	1,756,110	257
Albany, W. Va.	257	1,756,110	257
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materials will show proportionate movement. At present dealers in building supplies—that is, the contractors and yard men out in the state—are buying all of the pine, cypress, millwork, etc., that they can get their hands on, supplies being hard to obtain on account of the big car shortage throughout the South.

Supply dealers are facing still further delays in making deliveries of building material in case the Government starts any large troop or army supply movements. For several weeks it has been almost impossible to obtain cars in which to make shipments out of Louisville, and the entire South is in the same shape, the condition being worse than it was last fall when the big car shortage hearing was held in Louisville. Brick, sand, gravel, and similar commodities are given no preference—in fact, cars for such supplies being about the last supplied. For the past few weeks the L. & N. railroad company has maintained a virtual embargo against any of its box car equipment leaving its lines. Louisville shippers have taken the matter up with the Interstate Commerce Commission, but no results have been obtained as yet.

ALL RECORDS BROKEN IN NEW YORK.

New York, April 20.—The 1917 building season in the metropolitan territory opened with construction costs higher than they have been in years, in some instances certain commodities having broken all records. Nor is the end of the upward fluctuation in price lists in sight. In time of war one naturally looks for extraordinary conditions but the war of 1917 cannot be blamed entirely for the upward trend. Steadily for months past there has been a tendency to increase prices of everything that goes into the construction of a building.

The United States having entered the war, students of the building situation can conceive of no possible way of there being a decrease in prices of building materials unless of course there should be a tie-up in the building development of the country. Conservative business men can see no cause for alarm. Neither can they see any reason for expecting a reduction in prices of building materials.

Instead of a reduction it is pretty generally agreed that some commodities will go higher. Some, however, are thought to have reached the peak for the present. It is argued that the chief factor being labor cost, and labor being unlikely to accept smaller wages capital will be as unlikely to go back to the price standards prevailing before the war. This does not mean, of course, that there will not be readjustments, but it does begin to look as if it will be as profitable to build now as after the war and that nothing can be gained by putting off construction indefinitely. Considering this, architects estimating new projects for owners find the difference in cost of basic materials between ten and 100 per cent above the cost of a year ago.

Below is an interesting comparison of prices at the beginning of the 1917 building season and a corresponding period of the 1916 season in the market of the world's greatest city. In a few instances prices have advanced since this list was compiled but in no case has there been a reduction.

	1916	1917
Asphaltum (tank cars)	\$15.00	\$21.00
Brick—		
Hudsons, per M.	8.50	10.00
Raritans, per M.	9.00	10.50
Second-hand, 1,500 load.	3.75	5.00
Cement—		
Portland	1.67	1.97
Rosendale .....	.90	1.00
Gravel—		
Inch-and-a-half, per cu. yd. ....	.85	1.00
Three-quarter inch, per cu. yd. ....	.80	1.25
Hollow Tile—		
Exterior, 4x12x12.	0.9625	0.0825
Interior, 2x12x12.	0.042	0.064
Pig Iron—		
No. 2 X Phila.	20.00	33.00
Basic, Valley Furnace.	17.75	30.00
Bars, Phila.	2.409c	3.409c
Tank plates, New York.	3.169c	5.169c
Lime—		
Finishing	\$1.55 to 1.60	1.85
Common	\$1.15 to 1.37½	1.60
Hydrated	8.50	11.00
L—		
Linseed oil, raw, city. ....	.78	.97
Plaster—		
Mason's finishing, ton.	9.50	15.00
Blocks, 2 in solid, sq. ft. ....	.06	.0625
Boards, solid, sq. ft. ....	.16	.165
Sand—		
Screened Cow Bay. ....	.40	.50
Stone—		
½ in. crushed blue. ....	.90	1.10
¾ in. crushed blue.	1.00	1.20
Trap Rock—		
½ in. ....	.95	1.15
¾ in. ....	.85	1.25
Slate—		
Bangor, ribbon	4.10	4.50
Vermont, sea green.	3.00	4.90
Steel—		
Beams and channels up to 15 in.	2.419c	4.10 c
Bars, New York	2.669c	3.419c
W. nails, Pittsburg.	2.30 c	3.00 c
C. nails, Pittsburg.	2.30 c	3.70 c
Lumber—		
Flooring, oak	84.00	84.00
No. 1 pine, 13—16x21½.	25.00	27.50
Maple, clear, 2-in. face.	44.00	51.00
Maple, factory	24.00	33.00

L. L. Y. pine.	52.00	54.50
Shingles, cypress, 6x18.	8.75	8.75
Shingles, cedar perfection.	4.32	4.82
Siding, N. C. pine bevel No. 1.	17.25	20.00
Lath, East. spruce, 1½ slab.	3.75	4.25

BUILDING BOOM IN MILWAUKEE.

Milwaukee, Wis., April 20.—Although the cost of building throughout the entire state, and, in fact, all over the country, is ascending into the altitudes of living costs, construction activities in Milwaukee are holding up well, and from all indications of recent reports building in Milwaukee in 1917 will supersede that of any preceding era.

The prosperity of the nation seems to defy any prices that can be set on either commodity or operation, for, as the costs on building essentials have been rising from month to month, the building contracts have grown in number.

Although building seems to proceed without signs of many deterrent factors, some specific projected pieces of construction have been left mere plans without prospects of development for some time to come.

Building men of Antigo, Wis., anticipate a brisk building season. Among the plans announced lately are a new sawmill for the Fish Lumber Co., a flour and feed mill for the Hirt Bros. Co., two new public garages for the Service Motor Co. and Othersall & Sorenson, besides many private dwellings. Because of the high cost of lumber it is expected that other building materials will be utilized in large quantities.

BUFFALO FEARS CEMENT SHORTAGE.

Buffalo, N. Y., April 20.—The prevailing price of cement on future contracts is \$2.36 a barrel in car-load lots and \$2.70 a barrel, including sacks, delivered on the job. Considerable cement will be used in Buffalo this year and the demand may outstrip the supply. The Pierce-Arrow Co. will erect a four-story concrete factory at a cost of \$100,000.

In Dunkirk, N. Y., the common council will soon take action on the plan of City Engineer W. H. Shelton to inclose Hyde creek with a concrete culvert and shorten the course of the stream. It is estimated that the work would cost about \$43,000.

PROSPECTIVE CONSTRUCTION BOOM IN BUFFALO.

Buffalo, N. Y., April 18.—Mayor Fuhrmann, of Buffalo, announces that upward of \$50,000,000 may be spent by the city and railroads in developing the seawall and Hamburg turnpike property along the lake front. These contracts will begin provided certain submerged lands owned by the state and needed for the improvements may be obtained at a reasonable price. It is reported that the Pillsbury Flour Co. and large steel and other concerns will build plants along Niagara river, between Buffalo and Tonawanda.

DWELLINGS IN GREAT DEMAND.

The building of large numbers of houses by manufacturing concerns in Tri-State territory is one of the most encouraging facts of the situation this spring. The Miller Rubber Co., Akron, Ohio, has had plans prepared for 500 dwellings for its employees to be built in East Akron. The Goodyear Tire & Rubber Co., Akron, Ohio, is also arranging to build several hundred dwellings there. More than 200 houses will be built at Woodlawn, Pa., this year for employees of the Jones & Laughlin Co.'s \$10,000,000 plant there. The Harbison-Walker Refractories Co. is arranging to build fifty houses at one of its plants in western Pennsylvania. Other big industrial concerns in this district are practically forced to provide large numbers of houses for their employees for the reason that building projects have been very lax the past two years and the supply of houses is now far below the actual need.

NEW YORK BUSY BUILDING ROADS.

Buffalo, N. Y., April 20.—An early spring has helped operations at the local quarries. Plenty of crushed stone will be required for good roads improvements in this territory. Thirty-five and a half miles of roads in this county are likely to be improved, beginning this season, at a cost of \$10,000 a mile. The good roads committee of the Erie county supervisors has recommended these improvements.

BUILDING BOOM ON IN TORONTO.

Toronto, April 20.—Building permits continue to climb in Toronto. Those for the first three months of this year are three times the value of those for the corresponding period last year. The total for factories this year is \$614,875 against \$224,035 for the first quarter of last year. Warehouses are valued at \$52,200. A long jump has been made in the smaller classes of buildings such as houses, stores and offices. To date this year the value is \$182,300 as compared with only \$7,500 for the first three months of 1916.

In the industrial centers there is a demand for houses. In Welland the permits are four times what they were for the first three months last year, but there are no vacant buildings and houses are needed. In Windsor houses are going up at a very rapid rate. An outstanding feature of the construction is that the house foundations are in the majority of houses, of concrete blocks. A number of industrial buildings are also under way.

SAN FRANCISCO MATERIALS MARKET FIRM.

San Francisco, Cal., April 18.—The easy accessibility of San Francisco by water has kept the material markets better supplied than might have been expected during these times. Nearly all the building materials used here are shipped in by water, and prices have been steadier here than at many other points owing to the ease of securing supplies. The scarcity and extreme high price of structural steel has led to the use of reinforced concrete in all the less costly business structures, though a number of high-class steel and brick buildings have also called for large quantities of brick. Cement, sand and crushed rock are in strong demand all the time and the plants supplying San Francisco are increasing their capacities right along. Prices are a little higher, but the advances are not sufficient to seriously affect the demand. Brick, structural terra cotta, partition tile and other clay products are very firm at former prices. The production of lime has kept pace with the demand, and is selling at the same prices as for the past four years.

TEXAS SUPPLY MARKET BRISK.

Wichita Falls, Tex., April 19.—"Business is very brisk in this section of the country at this time, but we are doubtful if it is going to hold up on account of the United States entering into the war," says I. J. Weatherford, secretary of the Wichita Builders' Supply Co. "However, we do not expect business to slack up for longer than a month to give people a chance to get their breath, and find out that this country is not going to be invaded by a foreign army."

"We had quite a fire in Wichita Falls a few days ago, but fortunately the high wind was from the south, and it did not have far to burn until it ran out of something to feed the flames. The next day we had a 60-mile wind out of the north and, had the fire happened the next day, the chances are it would have been as bad or worse than the Paris fire, as it would have cleaned out the business section of the town, as well as a large portion of the residence district."

"The oil industry is quite an item in this country, and some of these days we are going to find gas around here, and then look out for Wichita Falls. If we could find plenty of gas as close to town as we are getting oil, Wichita Falls would grow to 100,000 within the next three years."

CONDITIONS IN WESTERN CANADA.

Winnipeg, Man., April 15.—Business conditions in the building and allied industries were never so bright since 1914 than they are today. Practically no building work of any account has been proceeded with since the outbreak of the war, except it be in the nature of an industrial building here and there throughout the four western provinces. There has been no general building which is looked for today by builders and building supply dealers all over the West.

Already building permits at Winnipeg are far ahead of those of 1916. Permits for 64 buildings, totaling \$157,000, were issued during last month. The two largest permits were for the Public Press Bldg., which will cost \$100,000, and a new creamery plant which will cost \$50,000. The total permits for 1917 amount to \$238,350 as against \$65,000 in 1916.

Similarly at the Coast there is increased activity in the building trade. The total permits issued for last month were valued at \$96,680 as against \$79,969 in 1916. The total value of permits for 1917 is \$125,825 as against \$88,284 for 1916. This is for the city of Vancouver, B. C.

The Grain Growers' Grain Co., of Winnipeg, announce that it has decided to expend the sum of \$500,000 on the construction of new elevators in the Province of Manitoba during the coming summer. This will stimulate the building supply business at country points. The country dealers report, however, that business has never been so bright as it is at present. Some dealers report that business is better than it has been for three years. The farmers are erecting new houses, granaries, silos, etc., in large number, they having more money on their hands than they have had for many years. They are feeling the benefit of the magnificent \$600,000,000 crop of 1916, and it is felt by the building and allied trades in increased business.

At Winnipeg negotiations are under way for the establishment of a \$1,000,000 paper mill. Plans are being prepared for the construction of a 50-ton mill to be erected by J. D. McArthur. The amount of power required will be from 1,500 to 3,000 horsepower.

At Saskatoon, Sask., builders supply dealers report business as excellent. Building plans for 1917 are already being considered by many firms. The T. Eaton Co., of Winnipeg, is to erect a new warehouse costing \$125,000. The building will be of reinforced concrete, five stories high. The Quaker Oats Co. will erect a two story factory and warehouse, 165' by 50' on its site. The Ashdown Hardware Co. is preparing plans for the construction of a warehouse costing \$5,000. The Bank of British North America is contemplating erecting a magnificent bank building at Saskatoon this summer.

At Calgary, Alta., the builder supply dealers report business in good shape. One dealer said that he had done more business the first three months of 1917 than during the whole of 1916. Many elevators are to be constructed throughout Alberta during this summer. The Alberta Farmers' Co-operative Co. has plans ready for the construction of numerous elevators which will cost \$350,000. Their capacity will be from 35,000 to 65,000 bushels. Strong & Dowler will also erect 10 new elevators in this province this summer.

Unbroken Prosperity Is the Road Ahead

The Necessity for Intelligent Organization and Co-operation Emphasized as Prime Factor for Business Success

*By H. S. GAINES, Ohio Organizer for National Builders' Supply Association.

THE bank clearings of the larger cities of the United States show that there has been no diminution in the volume of business that is being done. Are doing a great domestic business, and that there is no reason to fear a serious depression at the conclusion of the war.

The deplorable conditions in which France, as well as the remainder of Europe, will be after the war is shown by the statement that in one section of France alone, more than 400 factories have been utterly destroyed. These establishments have been denuded of machinery, tools, raw material and building equipment. Restoration of these factories will unquestionably involve the use of American capital and probably of much American material.

Inquiries received within the past week from Russia for steel products other than munitions of war show that that country is taking a forward look, and the indication is plain that with the termination of the war, there will follow enormous demand for American material and supplies from the land of the Czar.

Every condition points to continued prosperity. The great acreages of wheat already in the ground and the prospect of unusually extensive spring planting, indicate that with proper weather conditions there will be a harvest in 1917 of unprecedented proportions. Danger of inflation in all lines of industry appears to have been dispelled, and there will be years of unexampled prosperity after the war that will cause the present period to pale into insignificance.

Competitors No Longer Enemies.

It has not been many years since practically every business man considered his competitor his natural enemy—most competitors were not even on speaking terms. Conditions may not be all that could be desired yet, but the fact that most of you gentlemen here are competitors and are willing to gather in this Convention is evidence that some great force for good has been exerted in West Virginia that is helping to overcome this antagonism, and an analysis will show that force to be organization. I feel sure that a large measure of the credit belongs to this splendid organization.

The subject "Building Business Through Organization" is an axiom—as much so as the fact that a straight line is the shortest distance between two points. You cannot build business nor a house nor anything else except through organization. The organization that I know the most about and am the best qualified to discuss is called a trade association. Trade associations are thought of by the average business man as something that he ought to belong to—but don't—because he don't see what it does for him—or if he belongs, he attends a convention once a year.

When he gets back home and finishes telling his pals what a wonderful time he had, he promptly forgets about the association until they have another big party.

That kind of an association, gentlemen, was a passing phase of our industrial development.

Association a Business Machine.

The trade association of today is recognized as a business machine developed to the nth power of efficiency, is managed by a trained expert who knows how to use the power of concerted action sanely and safely for the benefit of the members and it pays the member greater returns than can possibly be secured through any other investment in his business. In other words, the dues paid in an efficient trade association are an investment and not an expense.

The government of the United States has recently, for the first time in its history, recognized the value

of these associations, although Great Britain, Germany, France and Belgium and other foreign nations have for many years not only recognized trade organizations, but in some instances made their administration subject to governmental control.

I feel that you will be interested in hearing what Mr. Edwin H. Hurley, chairman of the federal trade commission, had to say in regard to the government's attitude towards associations in his speech delivered at the spring meeting of the Portland Cement Association in Chicago on May 10 of last year. He said:

"Many of the economic questions before the American manufacturer today are not so serious or so complicated that they cannot be worked out on a sound, practical basis. Within a reasonable length of time, government and business will undoubtedly reach a better understanding, and both recognize that in order to do big things they must have the same object in view and have confidence in each other. I believe these conditions are being realized today, and if coöperation continues, the problems will be easy to solve and will make the effort worth while.

Information Scarce.

"The Federal Trade Commission, no matter how anxious it is to be helpful to those laboring under these industrial disadvantages, is confronted at the outset with a lack of adequate information regarding industry.

"With all the attention that has been given to business the past fifteen years, it is a remarkable fact that today there are no comprehensive data available, no constructive material at hand to furnish to a manufacturer, merchant or trade association desiring to improve the unsatisfactory conditions in its industry.

Must Have Facts.

"In order to coöperate intelligently with the manufacturers and merchants of the country, the Federal Trade Commission must have the facts about industry. With this thought in mind, we recently submitted the manufacturers of the country a form asking them to answer a few questions in regard to their business. Take the cement business for example. We hope to show for this industry the aggregate capital stock of all the cement manufacturers in the United States, the bonded and other indebtedness, the accumulated surplus or the earnings invested in the business, the net sales and the net profits. We will also show in the aggregate the depreciation charged off and the losses from bad debts. The amount of depreciation charged off will indicate in a measure whether this important item is being treated in a practical way.

"These figures, when compiled, will show whether or not the industry is in a good condition. If the money invested in the business is not yielding a fair return, the industry is not very healthy. It may be caused by over-production and unremunerative prices, or it may be that the business is not being as efficiently conducted as it should be.

"If after having these facts before us, we find that the cement industry requires further attention, and should desire our co-operation, we will be able to discuss intelligently with cement manufacturers or the Cement Manufacturers' Association, remedies that may be helpful.

State Divided Into Districts.

"As you have been told, I am connected with the Ohio Builders' Supply Association. We are trying to make that association one of these efficient business machines. The state has been cut into thirty districts, each district including from twenty to seventy-five dealers in building materials—and small enough in area that the members can meet once each month. Each district has its own chairman and secretary through whom the central office

at Columbus keeps in constant touch with local conditions in the district. What we purpose doing, see O. B. S. A. rules.

No Price Agreements.

"We do not allow our members to make any agreements or arrangements as to the prices of any commodities. It is not necessary because through studying the cost of handling material, each dealer soon knows what margin he is compelled to add to secure a profit, and these margins are about the same because the dealers are all working under the same conditions. My experience shows that where any commodity has been sold too cheap, to net a profit, the act was committed either through ignorance or malice neither of which have any place or standing in business.

"And so we come to the matter of prices, and upon the prices you make upon the products, depends your success or failure—that and collecting your money. You must stop and consider during the white heat of competition that there is no honor nor glory in securing a good order unless the price is right—and you get the check.

"It is a fact well understood among business men that the general demoralization in a large number of industries has been caused by firms who cut prices, not knowing what their goods actually cost to manufacture. The cost of selling also, which is equally important, is almost wholly lost sight of. Are the officers of the companies who are cutting prices right and left, irrespective of their costs, fair to their customers, stockholders, or competitors?

Quality and Service.

"Quality and service are becoming greater factors in the field of merchandise. Long after the price of a product is forgotten the quality of that product is remembered.

"A manufacturer who does not know with a close degree of accuracy what it costs him to produce the different articles he manufactures, and what it costs him to sell them, is not in a position to meet competition intelligently, and invites business disaster.

Many of the larger manufacturers have thorough cost accounting systems, which they recognize as necessary in order to give them the information essential to successful management. On the other hand, the number of small manufacturers who have no adequate cost or accounting system, and who price their goods arbitrarily, is amazing.

Proper Accounting.

"Proper accounting for the smaller manufacturers is most essential. It is necessary for his success that he knows on what particular article he is making a fair profit and on what he is making only a narrow margin of profit or losing money. If he has this information he can concentrate on the manufacture and sale of the product on which the profits are satisfactory.

"Whole industries, in many instances, are suffering from a lack of intelligent knowledge of cost.

Encourage Associations.

"Trade associations should not only be encouraged to increase their membership, but should be furnished by the government with complete statistics in their particular line and be assisted in every way to develop and stabilize the industry which they represent.

"Gentlemen in Ohio are simply following this up. It is the idea of our association to give the most of our time this coming year to the work of standardizing the cost systems of the building material dealers in the State of Ohio. We have the assistance and co-operation of practically every manufacturer in our trade in the United States because they realize that prosperous dealers mean sound credits and we are going into this work with a song in our heart confident of success.

*Address delivered before convention of West Virginia Lumber and Builders' Supply Dealers' Association.

Delivering the Goods at a Profit—Charge for Service

BY GEORGE A. OLSEN.

THERE are two sides to every business transaction, and two sides to every business enterprise. One affects the man engaged in business; the other pertains to the individual using that business to attain his desired ends. Usually this is referred to as the purchase of a commodity. In the building material business, however, it is service rather than a commodity that is sold. In this respect the sale of building materials is rather peculiar. The reason for this is traceable to the fact that the prices which retailers pay are well known to the consuming trade and, for this reason, are virtually fixed for the dealer.

A logical profit is due anyone engaged in business, but the expense attached to the handling and sale of building materials is so great that if the retailer simply added this onto the price he must pay the manufacturer, the impression is created that his percentage of profit is exceptionally high. Little or no thought is given by the consuming trade to the fact that the materials must be unloaded from the car to the warehouse, stocked in that place, reloaded to the wagons, carried to the job, and again unloaded to the ground. All this work takes time and a heavy investment of warehouse facilities and delivering equipment. At present prices of horses, wagons, motor trucks and labor, every delivery of this kind runs into big money. No one realizes this more than the retailer. It is for this reason that he figures close and, then, in addition, shaves his profit before stipulating his price to the purchaser. It is largely due to this series of circumstances that building material dealers can conduct business the year around and find themselves at the end of the year with less money than when they started.

There is another phase of the business that must be taken into consideration—competitive conditions. In practically every market the great aim of each dealer is to excel in the volume of business handled. Retailers have been known to brag about the great tonnage which they handle and the manner in which they are prepared to take care of this tonnage. In fact, they would much rather state that they have sold ten, twenty or fifty thousand barrels of cement than to mention the amount of money they have actually earned as the result of twelve months' business. We are all vain and like to think well of ourselves, but I am afraid that this bump of vanity, as a phrenologist would call it, is developed to a greater degree among building material dealers than any other class of business men. They refer to the big jobs of their community with pride when they say, "I furnished the cement, brick, plaster and woodwork that went into this job." You might just as well pierce the average dealer who makes a statement of this kind with a very sharp sword as to ask him, "What profit did it net you?"

There is only one way in which the goods may be delivered at a profit. That is to charge the profit in every instance. Why should a commodity such as that in which we are engaged in selling be handled for the pleasure of it? It is true that we are public benefactors and help to build communities, but inasmuch as we are not managing the charitable institutions of our various municipalities, we should be amply repaid for our services.

Since we are engaged in the business of selling service, let us see to it that we charge for this service a price commensurate with the work performed. In order to do this, we must know what it costs us to do business. When your driver delivers a thousand feet of lumber or twenty bundles of shingles or forty sacks of cement, the costs of performing that service do not lie only in the expense of the motor truck and driver. You must figure that in order to take these commodities from your warehouse or yard, you at one time had to place them there. You also had to keep them there in order to have them when called for. It required the services of at least a couple of men to load the wagon or truck, and possibly you sent a helper along to unload at the job. There are

* Address delivered at the fourth annual convention of the West Virginia Lumber and Builders' Supply Association, Charleston, W. Va., Feb. 2, 1917.

many little items which enter into the cost of delivering a load of building materials. Each of these should be figured, not into the various loads, but on the basis of units in which these commodities are sold. As, for instance, if you sell siding by the thousand feet, your charges should be on the thousand foot basis. If you sell lime by the barrel, your charge should be on the barrel basis. Plaster is usually sold by the ton and, accordingly, the charge should be on the ton basis. Portland cement is sold in some communities by the bag, but generally by the barrel. Therefore, all charges pertaining to the handling, sale and delivery of this commodity should be charged on the barrel basis.

I wonder how many of you have taken your figures for any given period, say a week, a month or a year, and have figured just what it costs you to deliver a barrel of cement. You will no doubt be surprised to learn that in the city of Cleveland, Ohio, where the building material business is possibly conducted with more labor-saving machinery, better warehouse facilities, delivery equipment and possibly more efficient help than in most communities, it costs an average of forty-nine cents to deliver a barrel of cement.

At two recent meetings of building material dealers of Cleveland a thorough discussion of cost accounting brought out some very interesting figures. Those who attended these meetings say they would not have missed them for the price of a year's dues in the local association.

With figures prepared by Earl Ross, of the Cuyahoga Builders' Supply Co., as a basis, eleven other members submitted cost percentages as applied to eight commodities previous to Jan. 1, 1916. These figures were tabulated to arrive at averages that may safely be considered representative of the conditions in Cleveland, both of "small" and "big" dealers.

Here is a table of figures in which appear two columns. The first contains the results of Mr. Ross's investigation of his own company's costs; the second the average of eleven other dealers, ranging from one to ten-yard plants. I mention both because there is a slight variation between those of the one concern and the average of the eleven concerns, with a slight reduction in favor of the first named.

I will call attention to the various items to be charged in connection with a few of the more popular commodities, such as cement, plaster and bulk lime. The complete table was printed in the May 22, 1916, issue of ROCK PRODUCTS AND BUILDING MATERIALS.

In the sale of a barrel of Portland cement it is found that there are eight items to be figured, namely:

Unloading and yard labor.
Cartage.
Poor accounts.
Interest.
Shrinkage.
Overhead.
Unproductive expense.
Taxes.

The figures in connection with the sale of cement, plaster and lime are:

Cement, Barrel.

	ROSS	Average
Unloading and yard labor.....	.035	.042
Cartage .....	.16	.16
Poor accounts, 1/2 % .....	.01	.01
Interest, 3/4 % .....	.015	.015
Shrinkage, 1/2 % .....	.01	.01
Overhead, 7 % .....	.14	.14
Unproductive expense, 3 % .....	.06	.06
Tax .....	.04	.04
Total .....	.47	.49

Plaster, Ton.

	ROSS	Average
Unloading and yard labor.....	.225	.23
Cartage .....	.75	.78
Poor accounts, 1/2 % .....	.038	.038
Interest, 3/4 % .....	.056	.056
Shrinkage, 1/2 % .....	.038	.038
Overhead, 6 % .....	.525	.525
Unproductive expense, 3 % .....	.225	.225
Discount differential.....	.030	.030
Total	1.892	1.913

Bulk Lime, Bushel.

Unloading and yard labor.....	.015	.016
Cartage .....	.050	.050
Poor accounts, 1/2 % .....	.002	.002
Interest, 3/4 % .....	.003	.003
Shrinkage, 1 % .....	.004	.004
Overhead, 7 % .....	.028	.028
Unproductive expense, 3 % .....	.012	.012
Discount differential.....	.003	.003
Total .....	.117	.132

In like manner the table shows that it costs from \$4.29 to \$4.89 to handle a thousand brick; from \$1.035 to \$1.04 to handle a yard of stone, and from \$0.985 to \$1.02 to handle a yard of sand.

For the purpose of satisfying myself that conditions are somewhat similar in all parts of the country, I inquired last week on a trip through Wisconsin of the cost of handling a barrel of cement in four different cities. Milwaukee, a large city, showed an average cost of thirty-four cents per barrel. Oshkosh, a city using about 50,000 barrels a year, showed a cost of thirty-five cents per barrel. Green Bay, which is a trifle smaller than Oshkosh, showed a cost expense of 31.5 cents per barrel. Appleton, which is considered a small city, and in which many sales are made in connection with other commodities, could not give accurate figures, but one of the most progressive dealers in town states that he had figured his costs in connection with the hauling of coal and wood and, while he admitted he had eliminated such charges as interest, overhead and unproductive expense, his costs were twenty-one per cent.

I have dwelt particularly on cement because this commodity seems to be the one most perplexing to building material dealers. I am positive from the investigations that I have made that retailers are not charging enough to their original costs to permit them to pay for their handling expense. In all of these figures not once has profit been mentioned. The present price of Portland cement in this territory is \$1.45 at the mill. Add to this a freight rate of thirty cents and a handling cost of forty-nine cents and you will have \$2.24. Add to this 5 per cent, or 11.2 cents, for profit, and your price to the consuming trade should be \$2.35 plus.

Gentlemen! Unless you are getting a price similar to this for each barrel of cement sold through the warehouse, and unless you are adding the correct amount of costs to each of the various commodities you sell, you cannot deliver the goods at a profit.

The question assigned me to talk upon is broad. I could add to my remarks experiences of motor truck users, and enumerate instances in which correct and incorrect sizes of trucks are being used, the folly of using trucks where single-horse wagons would do, and carry the argument through to the utter foolishness of delivering materials to the second and third story of buildings.

Let me, however, leave with you this one thought, study your costs, include them in your resale price, together with a fair margin of profit, and you will then be delivering your goods with pleasure to yourself, satisfaction to your customer, and the bookkeeper will be enabled to hand you a statement at the end of each month that will bring a smile to your face and a song to your heart.

BREVITIES OF THE RETAILER.

The Home Lumber Co., building materials, Kewaskum, Wis., has enlarged its office space and acquired a big motor truck for the handling of heavy materials.

The Whitnall Coal & Supply Co., Milwaukee, Wis., has increased its capital stock from \$50,000 to \$75,000.

The Barker Lumber and Fuel Co., Watertown, Wis., has purchased the lumber and building material yards of the Washburn Lumber Co., Sturgeon Bay, Wis.

The Anderson Retail Lumber Co., with yards at Copas, South Stillwater, and Wanderoos, Minn., purchased the lumber and supply yard of Nels Simonson, the O'Reilly company at Dresser Junction, Taylor Falls, Osceola, and Nye, Wis.

ROCK PRODUCTS AND BUILDING MATERIALS

\$2.00 A YEAR

CHICAGO

MAY 7, 1917

ANNOUNCEMENT

A NEW dress with a dash of red will be the garb of ROCK PRODUCTS AND BUILDING MATERIALS hereafter, and that you may know your old friend with the new attire we give you this peep now.

¶ Commencing with the next issue, May 7, this journal will be of the standard size, 9 in. x 12 in. over all, as shown here, and 7 in. x 10 in. type page. The title will be printed in red and black and the cover will be a superior coated white stock.

¶ It was stated in the last issue that numerous plans were under way for the future, all founded on the idea of service to the reader and advertiser. The first to make its appearance is the standard size, the white cover and the new red lettering of the title.

¶ The standard size journal has been requested repeatedly in the past by both readers and advertisers, as more easily handled, referred to, bound and filed, and cuts and plates can be made to fit all journals of standard size.

¶ The standard size makes for economy and service to both readers and advertisers; that is why the majority of the leading trade and technical journals are standard size.

¶ Remember, May 7, the next issue, will be of standard size. There will be other changes, with valuable, interesting articles and pictures, that we believe you will approve because of their worth and service to the entire trade and industry.

TRADEPRESS PUBLISHING CORPORATION



Sell the Complete Line of Best Products—

known for the service back of them; their quality and completeness. The demand created by consistent and extensive advertising warrants a ready sale. Our exceptionally large stocks enable us to furnish all materials promptly and eliminates dissatisfaction encountered when deliveries are uncertain.

HY-RIB and RIB-LATH

come in a complete assortment including—HY-RIB in four depths from $\frac{3}{8}$ " to $1\frac{1}{2}$ ". Each in various gauges.

RIB LATH, a most economical lath in three types and various gauges.

DIAMOND LATH, in two types and various gauges.

KAHN PRESSED STEEL Studs include channels from $\frac{3}{4}$ " to 2" in size, studs with prongs from 2" to

12" and hollow studs in various sizes.

STEEL CORNER BEADS for the protection of plastered corners, in four types.

METAL BASE SCREEDS for use between cement base and plaster are supplied in three types.

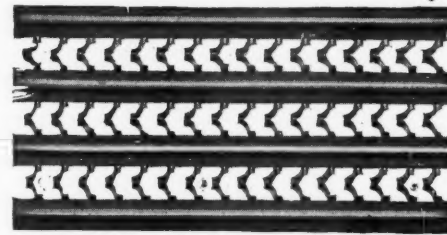
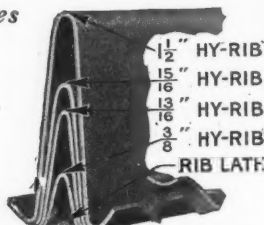
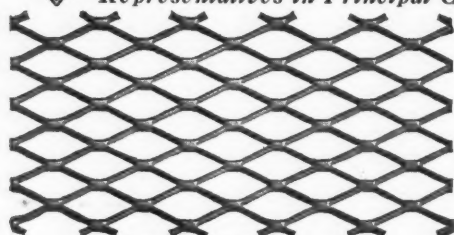
INSERTS for use in concrete slabs, beams or columns, for attaching fixtures, etc., are furnished in three types.

WRITE FOR CATALOGS, SUGGESTIONS AND QUOTATIONS

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YOUNGSTOWN, OHIO

Representatives in Principal Cities



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A liquid, but not an oil nor a tar. No heating. Can be discharged from any ordinary sprinkling cart.



GLUTRIN

Remember

All producers of stone, slag or gravel should positively advocate the use of GLUTRIN ROAD-BINDER in the construction of macadam roads, because it supplies all the lacking essentials to make perfect road efficiency in the cheapest and most satisfactory way.

Full information on request

The Glutrin Paving Company

Hartman Building Columbus, Ohio

Hartman Building

Columbus, Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

To the Man Considering the Erection of a Gravel Washing Plant



Every locality and every market present special problems, and the design of the plant must take into account the character of the gravel, the "lay" of the land, railroad facilities and freight rates, sizes demanded by the market, future demands, etc. The local conditions of the above illustrated plant were met in the following manner: Material is delivered to this plant by the Fountain River, the normal flow of which fills the excavations made by a self-contained drag line excavator. It is, consequently, possible here to operate this plant with no connecting link between the excavator and the belt conveyor. On account of the excess of fines secured in this way, the screen arrangement provides one initial Gilbert Screen serving two secondary Gilberts, each of these serving an "S-A" Settling Tank. The main belt conveyor is 20 inches wide by 200 feet centers, equipped with Unit Carriers, and an "S-A" Gravity Take-up. Surplus storage is arranged for by chuting from the screen to piles and reclaiming to cars by an "S-A" Belt Conveyor.

We design and manufacture conveying machinery for rock crushing plants, gravel washing plants, storage systems, etc. Also screening and transmission equipment, elevators, gates, feeders, carpullers, hoists, etc.

* Your business judgment tells you the necessity of applying expert judgment—backed by experience—to this proposition. If one concern had been identified with the washed gravel industry for over thirteen years, and had a record of having designed and equipped over 300 commercially successful plants, wouldn't you like to have that concern investigate your proposition and design the plant to meet the special conditions of your location and market? We are that concern, and we furthermore maintain an engineering organization to give just that service to our customers.

Correspondence invited.

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How You Can Make More Money

By selling more cement, lime, stone, gravel, lumber and other materials.

By getting new business and by cutting operating and selling expenses.

The Atlas "dealer helps" will help you get this business.

"What are Atlas 'dealer helps'?"

- (1) Practical plans, including books and letters, to interest farmers, home builders, manufacturers, road commissioners, tax payers in general, contractors, architects, engineers.
- (2) Free information for your customers on construction problems.
- (3) Tested methods for increasing your sales of lumber and coal.
- (4) Ideas on yard and warehouse layout that reduce the cost of handling materials.
- (5) Advertising helps—text matter and electrotypes for newspaper advertisements, signs, blotters, folders, pamphlets, jingles, moving-picture slides, business stationery, etc.
- (6) Other special service for your individual needs.

"How do you get them?"—Send the coupon below for full information.

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Members of the Portland Cement Association

New York Chicago Philadelphia Boston St. Louis Minneapolis Des Moines Dayton Savannah

PORTLAND
ATLAS CEMENT
"The Standard by which all other makes are measured"

The Atlas Portland Cement Co., 30 Broad St., New York, or Corn Exchange Bank Bldg., Chicago: Send me information about Atlas Cooperation, your suggestions for increasing sales, etc.

Name..... Address.....

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REXALL

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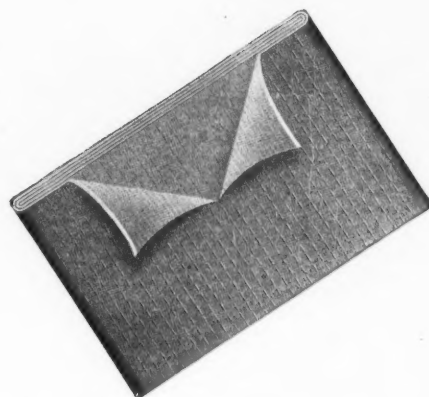
Is made to meet every condition and for every type of conveyor and elevator. Economical, strong, reliable, these belts outlast all others. The tightly woven duck of enormous tensile strength reinforced by inner-stitching results in the utmost stability.

"Rexall" on your conveyor or elevator means a big saving of money and trouble and increased length of service. Write or wire for samples.

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Hercules (Red-Strand) Wire Rope

Back of every HERCULES (Red Strand) Wire Rope is a large modern factory, directed by experienced engineering and manufacturing departments, and operated by skilled workmen.



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We make a study of Wire Rope working conditions, and are at all times glad to confer with you regarding your problems along this line.

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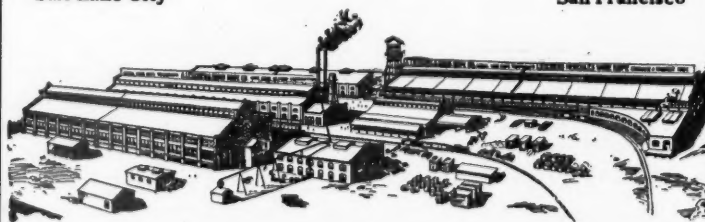
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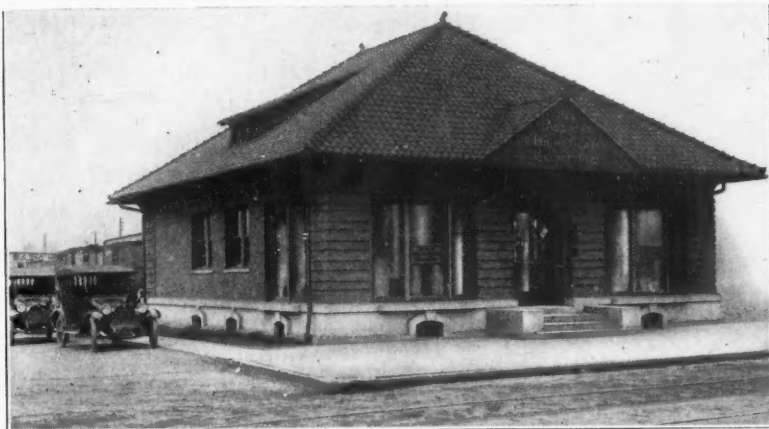
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The RETAILER

Rochester Yards Designed for Economy in Operating



MANDERY OFFICE AND YARDS OF THE AMERICAN CLAY AND CEMENT CORPORATION, ROCHESTER, N. Y.

ON Wednesday afternoon of the recent convention of the New York State Builders' Supply Association, held at Rochester on March 20, 21 and 22, chartered street cars were had for conveying the association body to the Mandery yards and office of the American Clay & Cement Corporation.

The Mandery yards were especially designed to give rapid and efficient distribution for the city of Rochester and nearby shipping points for less than car-lots of building materials. The railroad enters the yard at one side and switches spread out like the fingers of a hand, giving loading and unloading service to the various warehouses located between them. These tracks communicate with all steam railroads entering Rochester, so that cars received from any point can be loaded or unloaded at the warehouses. This arrangement saves shipping costs and delay in receiving and dispatching materials. The various warehouses, which are of triangular shape, are each devoted to a particular group of building supplies, one entirely for specialties—fireproofing materials and the like in all these varieties. Another to cements, plasters and similar products, and another to orna-

mental brick, sand, etc., while tile coping and other bulky products are piled in the open.

The office building is of the latest design, constructed to show the possibilities, in a great variety, of ornamental brick, tile and block. It serves as an object lesson to builders and architects, who often bring their clients to show them how the materials look in a building. A fleet of eight G. M. C. motor trucks is housed in an ample garage with machine shop and paint room, so that each truck can be kept up to highest efficiency at all times. Horse-drawn trucks are also provided for special work. The order and delivery systems have been worked out with sole idea of giving immediate service. Incoming orders are made in duplicate and go at once to compartments representing sections of the city or out of town district in which they are located. The designation of the materials and weights are a part of the entry. This enables the office to make up truck load lots going in the same direction with delivery slips to be signed on the job for each lot. The driver prepares his load from his delivery order book under the direction of the yard foreman. The signed delivery slip is returned by the driver to the office

and serves as a confirmation of the invoice. Four regular deliveries are made in the city daily with special deliveries between to cover emergencies. The Mandery yards are one of the four yards of the company located in Rochester from which deliveries are promptly made.

This trip and inspection tour was exceedingly interesting and one that every dealer should carefully note. Economy and cost of loading and unloading materials is a vital question today, and the system in the Mandery yards is one that has commanded favorable comment all over the country. This company and its president, John Maher, are advocates of co-operation and careful filling of builders' orders is a creed by which they live.

This corporation has given careful thought and attention to the layout of this yard. It was built and installed for the purpose of increasing profits and decreasing costs, and materially assisting and aiding that one vital requisite necessary to the maintenance of any building material industry—service.

We heartily commend the American Clay & Cement Corporation on the wonderful system employed at the Mandery yards.

MATERIAL MEN BACK LOAN ASSOCIATIONS.

Building material men handling all classifications of building material are warm backers of the building and loan associations operating in Kentucky, claiming that these bodies have done a great amount of good through enabling people of limited means or rather limited ready cash to erect homes. Therefore the supply manufacturers and dealers have been behind a movement to secure fair taxation for the loan companies in connection with the present work of the state Legislature in enacting a new taxation law, under which in the future a taxation commission will handle all tax matters in the state. It was at first feared that the building and loan companies would be taxed on their loans, which would have resulted in double taxation, as they are already paying taxes on money invested in property. However, so far the new laws have been framed so as to take care of the companies.

MINNEAPOLIS' NEW HOUSING CODE.

Citizens of Minneapolis see in the new housing code just passed by the Minnesota legislature, combined with the new building code last year, ample assurance of sanitation and fire safety as well as a protection against slums. The code was based orig-

inally on a so-called model framework prepared by Lawrence Veiller, America's foremost housing expert, then adapted to the needs of Minneapolis by a committee of the Civic and Commerce Association composed of an architect, a builder and a lawyer. It has since been rewritten many times. In its present form it represents the best wisdom of committees from the Minneapolis Real Estate Board, Builders' Exchange, Minnesota Chapter of the American Institute of Architects, Central Trades and Labor Assembly, the Inspector of Buildings and the Commissioner of Health, in addition to the committee of the Civic and Commerce Association.

"The housing code," said Edwin H. Brown, chairman of the Civic and Commerce Association committee, "will place Minneapolis in the forefront of American cities in insuring adequate light and ventilation, decent sanitary conveniences, reasonable protection in respect to safety and fire prevention and proper privacy for every family within our borders."

FREIGHT CONGESTION AND BUILDING.

Not until there are adverse conditions in freight transportation facilities, such as have now maintained for a lengthy period, is it fully realized to what an extent the building trades are dependent

upon the railroads of the country for assistance in the proper conduct of their business. Practically all lines of building endeavor experience this dependence, naturally some more than others, but most all trades feel the effects to some degree and generally suffer in consequence.

Modern building construction is far from being the comparatively simple matter that it was one hundred or even fifty years ago. In those days the materials used in construction consisted for the most part of brick, stone, timber and lumber, all of which were obtained locally or within easy hauling distance of the operation in which they were to be used. Steel products and numerous other elements now essential for the construction and decoration of buildings were not used in any but the most pretentious structures.

The architecture of the country was elemental and construction followed the lines of least resistance. Now all parts of our own country and many foreign nations contribute their products for the erection of practically all classes of structures, and these commodities have to be shipped from distant points in sufficient time to reach the operation as required. The transportation of these materials and supplies becomes the function of the railroads of the country, and that function is one of extreme importance to

the building interests. When the shipping facilities are interrupted on freight lines congested by embargoes or other circumstances building construction will be retarded as a consequence, if not altogether held up for a period pending the arrival of the necessary elements of construction.

Increased building costs can also be attributed to a limited extent to adverse freight transportation conditions. Commodity prices are for the most part regulated according to the ratio of stocks on hand or available supply, and the demand. When these stocks are limited and the supply curtailed for any reason whatsoever commodity prices naturally advance as the demand increases in intensity. With traffic conditions normal and freight coming through on time the market for building materials and supplies generally experiences but little difficulty in obtaining adequate quantities of all types of structural commodities sufficient to keep ahead of the demand. As soon as the transportation facilities are interrupted even for a short time the local market feels the effect almost immediately on account of the immense amounts of materials consumed in this territory every week.

Recently the building operations in the Metropolitan territory have been materially slowed up and one of the causes said to be responsible is the extreme difficulty in obtaining structural materials that are shipped from distant points. The building trades, as a whole, are closely following the plans for the reorganization of the freight traffic of the country, feeling that as soon as this situation is adjusted one of the important reasons for the apparent lull in the trade will have been removed, and that building conditions will naturally improve.—Record and Guide, New York.

THE FEAR THOUGHT IN SALES.

In a most instructive talk recently delivered before the Master Builders' Exchange of Philadelphia, B. J. Munchweiler, sales expert, told how selling efficiency could be increased.

Mr. Munchweiler said that while there were no set and dried rules for the teaching of salesmanship or selling goods, yet there were three fundamental principles which always must be observed in making sales. These, according to Hugh Chalmers, said Mr. Munchweiler, are: A. The law of attracting attention; B. The law of creating desire; C. The law inducing action. These three fundamentals were gone into in detail by Mr. Munchweiler, who explained the bearing of them on sales that had recently come to his notice.

What interested the members most was Mr. Munchweiler's theory that the "fear thought" was responsible for many selling disasters. For instance, "fear thought," he said, was responsible for keeping prices down, when salesmen should be getting more for their goods. Their fear that they would not be able to sell at the price, brought to their mind even before they had gone through the door of their prospects, was responsible for losing sales.

He gave many instances of the fear thought. One story which quite aptly illustrated it was of three men who had come to sell a little up-state spur railroad to J. Pierpont Morgan. They had set a price of five million dollars for the road, but when they got into New York City and saw the stately buildings, the traffic and the hurry of the metropolis, they lost some of their enthusiasm for the high price and decided that four million dollars would be enough. When they were ushered into Mr. Morgan's outside palatial office, they were temporarily stunned by the magnificence of the place and down came their price to three million dollars. Their cards were taken in to the magnate and in the long wait of two hours or more, their enthusiasm got down to two million dollars and just as Mr. Morgan was about to open the door, they decided that about one million was all they would think of asking for the road. Just then Mr. Morgan opened the door and drawing himself up said: "Gentlemen, I know that you have come down here to rob me. I shall not give you one penny more than ten million dollars for your road."

RETAIL CONCERN ERECTING NEW PLANT.

F. T. Justice & Co., Lexington, Ky., dealers in sand, gravel, crushed rock and other building materials, is now erecting a \$20,000 storage plant, on Fourth street, and expects to have it completed

by July. Concrete bins, 100'x18', are being built high enough for wagons to load from below, and automatic machinery will decrease labor needed in operation by about seventy-five percent. The capacity of the new plant will be 300 percent greater than that of the old plant on West Main street, and motor trucks will replace all teams. The business will be extended to take in the manufacture of concrete posts, gates, fences and ornamental concrete work for general construction purposes. A double switch to accommodate about twenty cars will be run into the plant, the approach to the bins being 500'. A concrete warehouse building and office will also be erected. The company started business in Lexington in 1893 as Curran & Justice, but was taken over by Mr. Justice in 1896, and the Main street plant erected in 1908.

COPLAY COMPANY ELECTS OFFICERS.

Allentown, Pa., April 13.—The directors of the Coplay Cement Manufacturing Co., at their recent meeting in Philadelphia, elected the following officers: President, Ferdinand L. Loeb, of Philadelphia; first vice-president, Emil Loeb, New York; second vice-president, Charles H. Breerwood, Coplay; secretary and treasurer, George A. Christ, Allentown; and counsel, Abraham Israel, Philadelphia.

The Dealers' Cement Corporation, Wilmington, Del.; capital, \$3,500,000; incorporators, M. L. Gatchell, L. A. Irwin and Harry W. Davis, all of Wilmington.

MEMPHIS NEWS NOTES.

Memphis, Tenn., April 18.—D. M. Crawford Co., building contractors of Memphis, has the contract for building a \$25,000 annex to the Methodist Episcopal church, at Clarksville, Tenn.

The contract for the erection of a handsome passenger depot for the Illinois Central Railroad Co. and North Arkansas Railroad at Helena, Ark., has been let to Leydon-Ortseifen Co. according to information received by President E. M. Allen, of the Business Men's League. The station is to be completed in four months. The Missouri Pacific has recently made extensive improvements at the same point.

The Kavanaugh Sand Co., Tennessee Trust Bldg., expect to see a good activity in sand trade during the next sixty days, contracts in hand and building in sight seem to assure this. It received a few days' contract from the city for sand and gravel for the engineering department. Its several local yards are beginning to receive shipments.

Memphis entertained a good roads meeting from several sections of the South at Hotel Chisca a few days ago. Senator Bankhead of Mississippi was one of the chief speakers.

L. D. Holinsworth, state highway engineer at Paducah, Ky., will leave for Graves county (Mayfield) to assist in planning road work there.

The Chickamuga Quarry and Construction Co. will begin to assemble material at once for the concrete bridge structure it will erect in Memphis over Monroe av. for which it was lately given the contract.

PITTSBURGH RETAILERS OPTIMISTIC.

The only visible bad effect of the United States getting into the war is the check on investments. There is no doubt but that many building projects along with other schemes will suffer from the generally unsettled condition of the investment market. To what extent this will work an injury is not yet known. So far there has been no cancelling of contracts here and the activity in building, especially in houses, is enough to insure prosperity in many towns in the Pittsburgh district. Retailers are having their own troubles in getting material for contractors. Shipments have been very slow and uncertain and lumber especially is very low in stock in the yards. There is no doubt that every retailer in the city could deliver much more lumber than he is putting out at the present time if he had the available dry stock. Other lines of supplies are also scarce. Prices in every line are tending upward. There is a feeling among many re-

tailers that quotations by May 15 will be higher in most lines than they are now. The season on the whole is opening up fairly well with good building orders for the past two weeks.

The letting of road contracts throughout this country has been going on lively this month and many big jobs will be started right away. The great handicap which contractors find is the scarcity of labor and teams. Even the quality of common labor is very undesirable and the supply is so uncertain that employment agencies have to be resorted to constantly to take care of the "turnover."

The J. G. McGuire Co., of New Brighton, Pa., secured more nice contracts for street work in the valley last week. This is one of the best equipped companies in the Pittsburgh district and which has a large proportion of the work down the Ohio river.

NATIONAL "BUY A HOME" CAMPAIGN.

President Henry P. Haas, of the National Association of Real Estate Boards, has appointed a committee to put on a series of "Buy a Home" campaigns during the month of May, 1917. Members of the committee are Hill Ferguson, chairman, Birmingham, Ala.; J. Edw. Morris, Indianapolis, Ind.; Paul C. Murphy, Portland, Ore.; L. F. Eppich, Denver, Colo., and John S. Leslie, Sharon, Tenn.

Campaigns similar to this have been put on in Birmingham, Indianapolis, Denver and other cities, and are found wonderfully effective in getting the public interested in real estate purchases, particularly after periods of depression.

Remember that the phrase "Buy a Home" is the one most applicable to all phases of real estate sales, and can very easily be turned into an argument for the purchase of a lot, the building of a residence, or almost any other real estate sale.

RETAIL NOTES.

Adams and Johnson Co., of Gilroy, has purchased Cox Bros.' lumber and building material business at San Martin and Morgan Hill.

Lorin M. Smith has taken the management of the Salinas Lumber Co., Salinas, Cal., replacing J. E. Huber.

A. B. Marchman, manager of the Nogales, Ariz., Lumber & Fuel Co., which is establishing a lumber yard on Grand ave., is erecting a new office building.

C. W. Vaughn, for seven years manager of the Minnetonka Lumber Co.'s yard at Maysville, Okla., has accepted a position with the same company in its general office at Oklahoma City. A. R. Vaughn, a brother of C. W., succeeds him as manager of the Maysville yard.

F. H. Froemming has opened a new trial yard at Fairmont, Okla.

Ray R. Jennings, formerly with the Hardman Lumber Co., Simpson, Kan., has affiliated himself with the Antrim Lumber Co., Garber, Okla.

The Odessa Lumber & Grain Co., Odessa, Wash., has sold its retail yard to A. E. Kressler.

Inland Lumber & Fuel Co., Harrington, Wash.; capital, \$10,000; incorporators, H. J. Mattes and Rose Mattes.

Union Cement & Lime Company, Louisville, Ky., is decreasing its capital stock from \$150,000 to \$100,000.

West Elizabeth Lumber & Supply Co., Elizabeth, Pa.; incorporators, H. D. Grannus and others.

The American Builders' Supply and Lumber Co. Cleveland, O.; capital, \$25,000; incorporators, L. S. Kaufman and others.

The C. P. Lovering Co., Lambertton, W. Va.; capital, \$50,000; to deal in building materials and supplies; incorporators, Constant Q. Ring, Boston, Mass.; Henry C. Ring and Louise W. Ring, Ellenboro, W. Va.; J. H. Lininger and Homer Adams, Harrisville, W. Va.

Frank J. Gatz, Union City, Okla., has bought the W. W. Jackman yard of that point. Mr. Jackman and his family will make their home in California.

The Citizens Lumber Co., Franklin, Neb., has purchased the Murphy & Garret yard at Maywood, Neb. It will be managed by Henry Erickson, who will be succeeded at Campbell by Frank G. Abel. Ed Erickson will continue as manager at Franklin.

Expense of Doing Business—How it Affects Profits

BY MORTON I. BREWSTER, Ridgefield Park, N. J.

WE have just closed up another year's business, and most of us are not at all satisfied with the results. We have worked hard, bought close, paid strict attention to business, and have added to the cost of the material: we have sold, what looked like a sum that would net a fair profit at the end of the year. Our selling prices must be high, for our competitor frequently takes contracts away from us at lower prices than we quote, and yet he seems prosperous. Something is wrong, and we can't seem to figure out just what it is.

The Federal Trades Commission has just completed an investigation covering the past year of 260,000 concerns doing a manufacturing and mercantile business, with the result that they find that 200,000 concerns were just eking out an existence, 100,000 of them didn't earn a cent, and only a very small percentage made over \$5,000. They also find that 10 per cent know their actual costs, 40 per cent estimate them, and that 50 per cent have no method of determining them at all.

Business conditions have become more complex as competition has increased, so that it is no longer possible to conduct it in the same old hap-hazard way. The dealer must be satisfied with small, or no profits at all, or adapt himself to present conditions to reap the benefit of the energy and investment that it is necessary to put into his business. When business was done on the old plan of adding to the invoice cost of materials a good healthy sum to arrive at a selling price, the result at the end of the year was satisfactory, but motor truck deliveries were undreamed of, a good team of horses could be bought for less than \$400, and oats to feed them with at 80 cents a bag.

Competition was not so keen, and sales not so large nor as frequent, and the buyer depended largely on the individual from whom he bought, for the fairness of the price he paid. Conditions have changed, yet many of us are still following the old method of adding to the cost of materials, what looks like an adequate sum, to arrive at a selling price.

We guess that it is costing more to handle goods, and we have suggested a larger sum that we ought to add. A very popular guess has been that a barrel of cement sold and delivered at forty cents netted a profit. The trouble is that we are mighty poor guessers, or we wouldn't be in the mason material business. We would be down in Wall street, and getting rich.

From reading the reports of other conventions, and from talking with dealers, I find that there are a lot of them all over the country who have come to the conclusion that some other method of arriving at a selling price, other than guessing, must be arrived at, to enable them to continue in the business.

The dealers in Cleveland arrived at this conclusion some time ago, and started an investigation on the unit plan, with the result that they found that it was costing them about fifty cents to handle a barrel of cement, \$1.79 to handle plaster, and \$2.50 for hydrated lime, eight and one-half cents for sewer pipe, \$1.085 for sand, and \$1.175 for crushed stone. These figures do not include a profit.

The steadily increasing cost of goods, freight labor, cartage, office and yards expenses, and taxes, and, in fact, everything that goes into the cost of doing business, from the pins with which you fasten your unpaid bills together, all along the line to the big new motor truck, makes guessing at prices a dangerous business.

Each article sold must bear its proportion of all the expenses of a business, and its proportion must be added to the invoice cost to arrive at actual cost.

There are thousands of merchants who are selling their goods at prices that do not cover their actual cost. Some of their goods are being priced by the guess method, below cost, some at a price which nets a fair profit, and some few items at a large profit. The result at the end of the year depends upon the sale of the highly-priced goods, but the final result is disappointing.

Much ruinous competition incident to price cutting would be avoided, if a general and careful

study were made of all the elements that enter into the cost of doing business. Such a study would bring to light a lot of small costs which mount up in a year's business to an amazing sum, but which are not discernible by casual observation.

An item of cost that is not usually visible to the naked eye, and which is very much under-estimated, is an over-stock, the cost of carrying it, and the depreciation that is incident to it, made up of damaged goods, hard cement, broken and dirty brick, slacked lime, and insurance and storage, is usually very much under-estimated. This item has been estimated in the lumber business as 18 per cent, but I am confident that it is much higher in the mason material business.

The following is a list of items, with some others, that go to make up overhead expenses, a proportion of the total of which should be borne by each article sold. Salaries and wages, including your own, worthless accounts, general expenses, made up of postage, stationery, carfare, office supplies, heat, light, power, telephone, insurance, lawyer's fees, automobile repairs, and minor repairs of all kinds; interest, on borrowed money, on accounts past due, and notes payable; discounts for cash for allowances made in the settlement of accounts; advertising in its many forms, including legitimate, charity, programs, etc.; cartage, feed or fuel, repairs and depreciation; freight, including small items not chargeable to merchandise account, and including car service; depreciation, of buildings, equipment, real estate, mortgages, etc.

To some of you this study of costs is not new, and you have no doubt worked out the problem, but the best interests of the dealers in New Jersey demand that it be solved by all.

Many concerns won't analyze their accounts closely on account of the time it takes, or the money it costs to get an accountant to do it for them, or on account of indifference.

Some workable plan that is fairly accurate has to be devised that we can all use without the aid of accountants, and without costing us much, in time or money; a method that is fool proof and automatic.

This is simpler than you might suppose, as such a method can be worked out very easily if we keep books at all.

There are three ways of getting at overhead cost, so as to apportion it amongst the articles sold. The first is complicated and requires a lot of statistics, and consists in figuring the actual cost to handle a particular article by taking the invoice cost and adding to it the exact proportions of each item contained in the overhead charge, as applied to that particular article.

The second method is by computing the percentage of overhead on invoice cost, which is easier to do than the first, but not as practical as the third, which is to compute the percentage of overhead on the selling price.

By dividing the total amount of your yearly expenses by the total sales, you arrive at a percentage of the sales that it has cost to do business.

By personal inquiry in northern New Jersey, I find that this percentage ranges from 18 to 24. With a large majority of dealers it is 20.

In percentage then, 100 per cent represents the selling price, which is made up of 20 per cent overhead, and the percentage of profit, which most dealers place at 10 per cent as being a fair profit, and the cost of the goods.

Out of each dollar's worth of goods that you sell, twenty cents is overhead, ten cents is profit and seventy cents is the cost.

To find the selling price, we simply divide the cost of the article by the percentage of cost, in this case 70 per cent, to find the selling price.

For example, a thousand lath cost, say \$4.50. We don't know what the selling price should be, but the gross profit is 30 per cent. Therefore the cost, \$4.50, divided by the percentage of cost, 70 per cent, gives \$6.42, or 43 per cent added to the cost. It takes 25 per cent added to the cost to break even, and an extra 18 per cent to get a 10 per cent profit.

Now a lot of you dealers are mentally shaking your heads at what appears to you as extravagant ideas as

to profits, when represented by 43 per cent, and you are not going to be convinced right off that by adding 43 per cent to cost, nets you only 10 per cent on the sale.

Know your costs. Form small local associations of dealers, and get around a table with some food on it. Get acquainted, and you will be surprised to find that your competitor is a fine fellow, and that he is after the same thing that you are—profits.

The trouble is that he hasn't had confidence in you, nor you in him, and that the only way to get business is by cutting prices.

When you both realize that it is absolutely necessary to get a certain percentage above invoice cost to make a profit, and you are both thoroughly satisfied what that percentage is, there will be no incentive left to cut prices, and you will both realize that you will have to get more money for your goods if you expect to stay in business and be a help to your community.

That road building will be a big item in construction work in Washington this year is indicated by the fact that bond issues contemplated at this time total \$3,500,000. The government and county appropriations come to about \$6,000,000. In the first three months of the year contracts have been let for nearly 300,000 square yards of concrete paving. The first concrete paving in Washington east of the Cascade mountains will be built by Chelan county, and will be a mile and a quarter long.

The commissioners of Lewis county, Wash., have let a contract for 5,000 cubic yards of sand and gravel to the Pioneer Sand and Gravel Co. of Tacoma, Wash., and for 2,000 yards to the Twin City Sand & Gravel Co. of Centralia, Wash., to be used in county road work. This is the first county in the state to buy sand and gravel to furnish to contractors. The material will be hauled fifty miles, rather than use the local product which has considerable foreign matter in it. This county has also awarded contract for 4,000 barrels of cement to the Olympic Portland Cement Co., and 6,000 barrels to the Washington Portland Cement Co., both of Seattle, Wash.

RUSSIA BUYS BUILDING MATERIALS.

New York, April 21.—The United States will play an important part in the reestablishment of the business industries of Russia, and it is expected that millions of dollars' worth of building materials will be sent from this country for use in constructing buildings of all kinds in the newest republic after the war is over.

Recently M. S. Pines, of Petrograd, has been in the city placing many orders and at the National Complete Building Exposition at the Grand Central Palace he was a constant visitor. He represents several of the largest firms in Russia. During his tour through the commercial districts of the United States he has had the advice and has conferred with leading iron, brick and lumber men.

It is something new to have Russia adopt this policy. Heretofore her business houses were wont to go to England and other Continental countries, but the latter will be unable to take care of outside business at the close of the war for some time as it will be necessary to conserve their resources for domestic purposes.

NEWS OF THE RETAIL FIELD.

The McKeesport Builders' Supply, of McKeesport, Pa., thinks that the outlook for building and construction work in the Tube City is very good this year. Stocks are low and deliveries have been extremely slow and uncertain.

Material men, contractors and builders of the three falls cities expect to handle a lot of business in New Albany, Ind., during the next few weeks as a result of the cyclone which struck that city recently.

The Wilcox Co., Chicago, Ill., recently announced that it will handle the entire production of crushed stone, sand and other rock products of the Fontana gravel pit, Fontana, Wis.

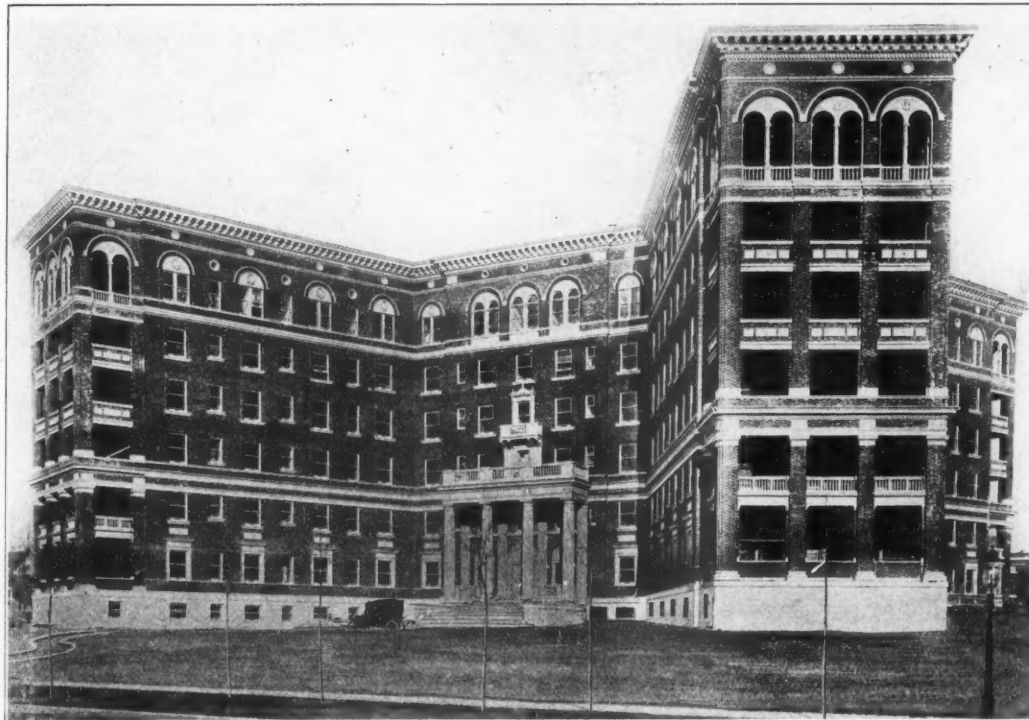
New Ideas in Hospital Construction

Reinforced Concrete Used in \$500,000 Building—Every Room an Outside Room—11,500 Barrels of Portland Cement Used

THE St. Joseph's Hospital, recently completed at Kansas City, Mo., by the George A. Fuller Construction Co., and which was designed by architects Wight & Wight, has brought forth something new and novel in hospital architecture. The building was erected at a cost of \$500,000 of reinforced concrete and is trimmed with terra cotta, cut stone, tapestry brick and tile and has a gravel roof. A laundry and power plant was built separate from the hospital at a cost of \$50,000 and is of reinforced concrete and face brick. Every room in the big building is an outside room with numerous windows. The building can easily be likened to a four-pointed star, in as much as the seven-story structure occupies an entire city block and has four wings projecting toward the four corners of the block.

The main section of the building is a rectangular portion which houses the general offices on the first floor. Projecting toward the corners of the block from the four corners of this central portion are oblong wings which terminate in sun porches. The central portion of the building is 63'x56' and the wings are 84'x38'.

The building is the most modern of its kind that



ST. JOSEPH'S HOSPITAL, KANSAS CITY, MO.

has been erected in Kansas City. There are diet kitchens on every floor and five operating rooms on the top floor. The power plant and the laundry, which was erected separate, is connected with the hospital by means of a tunnel. Two large elevators are installed in the central portion of the building as well as a large and commodious stairway. The floor plan, which is the same on all floors, shows the

cement for the institution, approximately 11,500 barrels, was furnished by the Dewey Portland Cement Co. These building materials have formed a building that is an edifice to their usage. The interior of the building is mostly of oak, although a large number of the chambers are done in ivory and white enamel, making a wonderfully clean and refreshing effect.

chambers and the corridors which terminate in roomy sun porches. There are two telephone booths on each floor situated so that the operators are afforded a clear view from the intersections of the corridors. A small incandescent red light is placed above the door of each patient's chamber and the patient, to summon a nurse or other assistant, merely has to push a button and the light flashes the signal to the telephone operator who secures the assistant by means of an intercommunicating telephone system from any portion of the building.

The Hydraulic Press Brick Co. furnished a little more than 500,000 face brick for the institution. The tile and other clay products were furnished by the Humboldt Brick and Tile Co. of Humboldt, Kan., and the terra cotta was supplied by the Atlantic Terra Cotta Co. The

INTERESTING CONCRETE OIL TANK.

REINFORCED concrete as a material for oil tanks has become a subject of much debate, as many engineers and oil men have felt that this material could be used with economy, while others have offered the objection that the security of concrete tanks against leakage and permeability has been open to question.

A reinforced concrete tank has been built by the Davidson county turnpike board, Nashville, Tenn., with the co-operation of the Tennessee highway commission for the purpose of heating and storing oil used in resurfacing the macadam roads of the county. This tank was completed about July 1, 1916, at a cost of only \$3,000 and has been used for holding 100,000 gallons of asphaltic oil. The capacity of the plant is 50,000 gallons and it is so constructed that from 2,500 gallons up to the full capacity may be heated at one time. The results attained have been highly satisfactory and it has rendered every service that could be obtained from a tank of other material. The cost has been low and it is expected to have an indefinite length of life.

The tank contains some unusual features and is generally considered one of the best structures of the kind in the country.

The tank is both filled and emptied by gravity and one man can take care of all parts of it, including the boiler which supplies the steam used in heating the oil, and all valves.

The gravity feature is the result of building the plant in an embankment. The railroad switch on which the cars are brought to the tank is on an elevation slightly higher than the top of the tank proper, so that there is a slight fall in the oil-pipes running to the tank. The road on which the oil-distributor—

a motor truck provided with pressure-distributor—runs, is below the embankment and a trench from the bottom of the tank to the road carries the pipe which drains the tank.

The oil pipes are 4" in diameter and are entered at various points by $\frac{3}{4}$ " steam pipes, one such double-pipe connecting to the tank car for the purpose of heating the oil in the car to empty it. A similar pipe drains the tank. The time required for emptying a car has been reduced by this means from forty-eight hours to less than twenty-four hours at a temperature of about seventy degrees.

The tank consists of eleven compartments, divided into two rows, one having five 5,000-gallon compartments and the other of four compartments of this size and two of 2,500 gallons, each to be used on heating small quantities. Each of the large compartments is

12'x9'x6", while the small ones are 5' 9"x9' 6". Each compartment is 7' high.

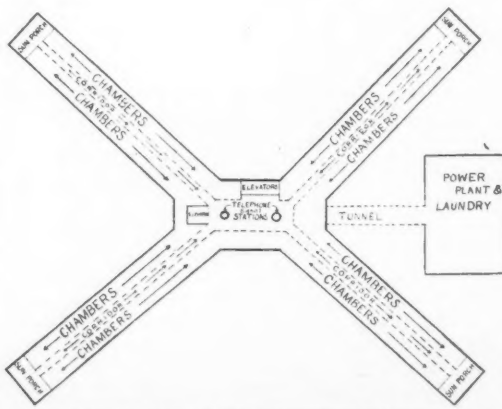
The two rows are separated by a longitudinal wall, which is built in a gutter along which the drain pipes run. This gutter is 2' wide and is from 10" to 13" deep, providing a fall to the end from which the trench is run.

Each compartment is provided with a spiral coil of steam pipe which heats the oil stored in it, each of the small compartments having the same heating area as a large compartment. The emptying of the individual compartments is controlled by a pipe fitting by a sleeve joint to the main exit pipes and raised and lowered by a cut-off rope which runs into a case at the top of the tank. This possesses the advantage of economy and also shows the operator what compartments are open when the oil is running out.

In the design of this tank cracks due either to expansion or to pressure have been avoided and it is this feature which must be especially cared for in concrete tanks, because an improperly designed or constructed tank may be rendered wholly useless by the presence of cracks from these causes.

In order to take care of expansion in the long walls of the plant, expansion joints have been placed in two of the cross walls, while the bottom slab has been provided with joints underneath the walls. All walls, except those adjoining expansion joints, are 6" thick, while those next to the joints are 5" thick. The vertical joints are $\frac{1}{2}$ " thick and are made up of six-ply asbestos felt, while two-ply felt is used in the joints in the bottom.

The walls are reinforced both horizontally and vertically for expansion and pressure. The horizontal reinforcing in the expansion joint walls consists of $\frac{5}{8}$ " round bars 6 $\frac{1}{2}$ " on centers about one-third of the way up and one-half rounds 9" on center for



FLOOR PLAN OF ST. JOSEPH'S HOSPITAL.

the remainder, staggered with bars of similar size somewhat closer together. In the longitudinal inside walls $\frac{3}{4}$ " bars, 6" on center are placed for two-thirds the height and $\frac{1}{2}$ " bars $5\frac{1}{2}$ " on center for the remainder, while somewhat similar reinforcing is used for the cross walls without joints. The vertical bars are $\frac{5}{8}$ " corrugated rods 18" on centers. The bottom is unreinforced and varies in thickness from 2" to 14", with a $\frac{1}{2}$ " finish coat.

The walls of the tank come flush with the ground. Outside the walls are concrete footings which support a timber structure that covers the tank. This is carried to a gable roof and is covered with corrugated iron. The tank proper is open under this roof, so that any water that enters the oil may be distilled off without causing foaming, as might happen if the oil were closely enclosed. A 40-horsepower boiler which heats the tank is separately housed.

A. M. Nelson, the state highway engineer, who has watched this tank with interest, states that it has proven a thorough success. Although it was initially somewhat harder to heat than a metal structure, the concrete retains heat well and can be reheated as easily as any other kind of a structure. No cracks have developed and no absorption has been shown.

The oil has been used in the treatment of macadam roads in the county. The location of the tank was selected with a view to serving the largest number of roads, eight main pikes radiating from this point.

The oil has been used in connection with crushed gravel and by this treatment a smooth durable surface has been given. The macadam roads have proven to be excellent foundations and only a good binder surface has been required to support heavy traffic, whether horse-drawn or motor.

The tank was designed by Willis G. Waldo and was built under the supervision of J. K. Rains, assistant superintendent of the turnpike board.

MILWAUKEE APPROPRIATES FOR BRIDGE WORK.

Milwaukee, Wis., April 20.—More than \$2,901,000 has been allotted concrete bridge and viaduct replacements and repairs in a program based on estimates extending to Jan. 1, 1929, covering the entire city of Milwaukee, by J. C. Pinney, superintendent of bridges and public buildings, all the improvements being contingent on the Milwaukee River remaining open to traffic. In case the stream is closed to commercial navigation the figure will be still larger because of an increased number of concrete bridges possible through the elimination of "draws" and "swings." The use of concrete is certain to be a big factor in the economy of taxes. Following is a definite illustration of the saving effected through the use of concrete. At the present time there is no bridge on Cedar Street. It ends abruptly at the river bank. It is proposed now to build a steel structure for the accommodation of street and river traffic at a cost of \$250,000. In case, however, that traffic is discontinued on the Milwaukee River, which will obviate the necessity of adjustment to the passage of water craft, a concrete bridge is proposed at a cost of only \$75,000—a saving of \$175,000 on one structure.

CONCRETE ROADS PAY FOR THEMSELVES.

At a recent meeting of the Geigerstown (Pa.) Good Roads Association the principal speaker was N. Guiley Finch, who spoke particularly of the commercial advantages of good roads. He said that a system of permanent, hard-surfaced roads would enable the marketing of products of the farm at all seasons of the year. Then, too, a load of great tonnage can be hauled with less power over a properly built road than over a dirt or mud road. He spoke on incident decreased cost to vehicles and harness, not to mention the lengthening of the life of motor vehicles, horses and mules.

"A temporary road," said Mr. Finch, "is composed of material which is unable to stand up longer than from one to five years under the traffic which travels over it, such as clay, gravel, macadam, etc. A permanent road is constructed of materials which will stand up under all traffic which travels over it for 15 to 20 years or more, such as concrete, brick, etc."

"The foremost road authorities agree that a prop-

erly built, serviceable road should embody the following features: It should be smooth, not slippery, sanitary, durable, low in cost of maintenance and of lowest first cost consistent with performance and other desirable qualities.

Good Roads Congress at Ottawa

Fine Showing of Latest Road Building Machinery Held in Connection With Three Day Convention — Many Fine Addresses

Ottawa, Ont., April 15.—The fourth Canadian and International Good Roads Congress was held at Ottawa, April 10 to 14. In connection with the convention an excellent exhibition was held, where all the latest machinery for the construction was to be seen, as well as materials of construction. The convention and show was opened on the afternoon of the 10th by His Excellency, the Duke of Devonshire. Other speakers were Sir George E. Foster, acting premier; Sir Wilfrid Laurier, who said that the old policy of cheap roads and high maintenance should be reversed; Mayor Fisher, of Ottawa; A. D. Dion, president of the Ottawa Valley Motor Car Association; W. A. McLean, deputy minister of highways in Ontario; M. B. Micaud, deputy minister of highways in Quebec, and S. L. Squire, honorary president of the Ontario Good Roads Association. The chair was occupied by the president, J. Duchastel De Montrouge.

Hon. W. G. Mitchell, provincial treasurer of Quebec, thanked the American visitors for their judicious advice in regard to good roads. Much had been said in commendation of the highways of the United States, but the time had arrived for boosting Canadian highways.

\$20,000,000 for Good Roads.

Only recently the Quebec legislature had voted \$20,000,000 to be spent on the good roads system of the province, and applications were pouring in from municipalities in all parts of the province for part of this money to spend on the roads in their respective districts.

The first serious step was taken in 1911, when the legislature passed a Good Roads Act, and voted about \$10,000,000 to be spent on better highways. "For a number of years we got very little support," said Hon. Mr. Mitchell, "but today the people want to spend the money faster than we can borrow it. They have awakened to a realization of the immense value of good roads in the province."

Valuable to the Farmer.

Speaking on improved highways, Sir George Foster said it was essential to make the farmer feel that time is money to him. When the rural resident can see that in bringing in increased loads of produce he is saving time and earning additional money, then he will favor good roads.

How farmers had increased their revenues and how valuation had gone up in many sections of Massachusetts was told by Col. W. D. Sohler, chairman of the Massachusetts Highway Commission, in replying to the toast of "Our Guests." He stated that in his state farmers had asked for an increase of nine mills for roads.

Increase Realty Values.

In Beverly, Mass., good roads were responsible for the increase of valuation from six millions to forty millions. Some of the farmers had succeeded in saving \$300 a year in hauling produce to town, and this was brought about because of good roads, which reduced hauling expenses.

Poor Roads Cause Crop Loss.

James H. MacDonald, highway commissioner of the State of Connecticut, spoke of a section of his state where some of the finest apples were grown, but where many bushels went to rot every year because the growers were unable to market them owing to bad roads.

Many Interesting Addresses.

On the 11th papers and addresses were given by Geo. Hogarth, chief engineer Ontario Highways Department; W. A. McLean, deputy minister of highways in Ontario; Col. Wm. D. Sohler, chairman Massachusetts Highway Commission; T. Harry Jones, city engineer, Brantford, and James H. McDonald,

"Concrete roads are exceptionally low in cost of maintenance. The average cost per mile per year is less than \$50. In the case of many road materials the annual cost is from \$500 to \$1,200 per mile. Concrete roads more than pay their way."

ex-state highway commissioner of Connecticut. Paul D. Sargent, chief engineer State Highway Commission of Maine, was to have read a paper on "Modern Methods of Maintaining Earth, Clay and Sand Roads," but he was unable to attend and sent his paper forward. Mr. McDonald talked on "Road Drainage," the subject of Mr. Hogarth's paper, giving United States practice in this connection. At the session next day Mr. McDonald gave a paper on the "Construction and Maintenance of Gravel and Macadam Roads." The other contributors to the program (on the 12th) were as follows:

"Correction of Alignment and Grades in Existing Highways," A. Fraser, Engineering Department, Quebec; "Highway Bridges and Culverts," W. G. Yorston, assistant road commissioner, Nova Scotia; "Brick Roads and Pavements," D. T. Black, Welland, Ont.; "Granite Block Pavements," W. H. Connell, chief of Department of Public Works, Philadelphia; "Methods Employed for Making Road Material Surveys," L. Reinecke, Geological Survey, Department of Mines, Ottawa; "Safety on Public Highways," R. B. Morley, general manager, Ontario Safety League.

Other contributions to the program were as follows: "Road Oils," Arthur H. Blanchard, professor of highway, engineering, Columbia University, New York; "Modern Road Machinery, Its Selection, Use and Care," Wilmund Huber, assistant engineer, Ontario Public Highways Department; "Road Organization," Geo. S. Henry, M. P. P., Ontario; "The Highway in Relation to Land Development," Thos. Adams, town planning adviser, Commission of Conservation, Ottawa.

An invitation was received from Hamilton to hold the next convention in that city.

UNIQUE "GOOD ROADS" PLAN.

What is regarded as a unique scheme for highway improvement has been adopted by the Dixie Highway organization at Waycross, Ga. The plan provides for a continuous "bagging party" for the highway. Sacks of gravel and clay will be stacked at the city limits, where autoists can get them easily, and each car having room will take one or more sacks to some spot on the road needing attention. Frequently, it is pointed out, one sack of clay will fill a hole and eliminate a rough spot. Bridge approaches, nearly always more or less washed, can by this method be kept in splendid condition at no expense other than that incident to filling the sacks.

Sack stations will also be established at Folkston, Douglas, Fitzgerald and other points along the highway, and in the course of a few months it is believed all bad spots of the highway from Macon to Jacksonville can be entirely eliminated. One of the Waycross highway boosters, to further the scheme, has tendered a motor truck one day of each week to haul sacks of gravel to designated spots along the highway.

Concrete roads will radiate in all directions from Seymour, Wis., if present road-building plans materialize. The Waupaca Sand & Gravel Co., Waupaca, Wis., will furnish 30,000 yards and the Moraine Sand & Gravel Co., Glenbeulah, Wis., will supply from 30,000 to 40,000 yards.

Stanislaus county, Calif., road bonds have been disposed of, contracts let and work has been started on the 126 miles of concrete roadway for which \$1,500,000 was voted at a recent election. The new highway will connect all the important towns in the county.

ROAD BUILDING

NEW TEXAS LAW TO BOOM GOOD ROADS.

Austin, Tex., April 16.—It is expected that as a result of the new law, passed at the recent session of the Legislature, creating a State Highway Commission, there will be a big increase in good roads work in Texas. The chief benefit will come from the adoption of a uniform system in highway construction and maintenance, instead of the more or less haphazard method now practiced by counties and districts. The law was carefully drawn by men deeply interested in the construction of modern highways, with the assistance of expert road engineers. It provides for the appointment by the Governor within sixty days after the document becomes effective of three citizens of the State as a Board of Highway Commissioners. These commissioners, as soon as practicable after their qualification for office shall elect a State highway engineer, who shall be a competent civil engineer and graduate of some first-class school of civil engineering, experienced and skilled in highway construction and maintenance, and who shall receive an adequate salary in the discretion of the commission. The act further provides:

"Whenever the commissioners court of any county shall desire, and is prepared to construct one or more miles of public road constituting a part of the system of state highways as designated by the department, such court may make application for an allotment of state aid from the state highway funds, and if such application is accompanied by plans, profiles and estimates prepared in accordance with the requirements of the state highway engineer, the commission shall file such application in the order in which it is received; and when such roads shall be constructed according to specifications and under the supervision of the highway engineer, the commission shall make an allotment of aid from any moneys available in the state highway fund, not to exceed one-fourth of the cost of construction; provided, such state aid may not be expended to aid in constructing more than ten miles of road in any county during any one year. In counties in which the assessed valuation of property, in the judgment of the commission, does not warrant the construction of sections of the system of state highways necessary to provide the state with trunk roads, or to connect market centers of the state as provided in this act, the commission may, in its discretion, increase such allotment of state aid not to exceed one-half the cost of constructing not more than ten miles of such part of the system of state highways in each of such counties in one year. All such parts of the system of state highways that may be constructed with state aid, as provided in this section, shall be maintained at the expense of the county in which such part of the highway is located, in accordance with plans approved by the state highway department; and failure to maintain such sections of state highway shall forfeit any further state aid until such maintenance work shall have been done."

To provide funds to effectuate the provisions of the act annual license taxes are imposed on motorcycles and motor vehicles.

VALUABLE BOOK ON HIGHWAY LAWS.

"Highway Laws of the United States—A Topical Discussion" is the title of a bulletin just been issued by the Bureau of Municipal Research, New York. This is the first portion of a book prepared by A. N. Johnson, now consulting highway engineer of the Portland Cement Association, while he was connected with the bureau named. It contains a general discussion of the principal points that should be covered in highway law and a brief mention of the way such laws in different states cover the points discussed.

DANGERS OF NARROW ROADS.

What is more exasperating than to meet a heavily loaded wagon in a narrow, steep, rocky road without room to turn out? If you have the lighter vehicle it is "up to you" to back out and give the other fellow the right of way, especially if he is the "bigger" man. Sometimes in endeavoring to squeeze past you run into an obstruction and either upset or break some part of the rig. Both courses are dangerous, and more especially so if you happen

to be driving a young skittish team instead of the old family "Mare."

Not long ago the photographer who was taking the moving pictures for the new Du Pont "Road Building" film had set up his camera with a view of showing a short section of a narrow, rocky road. At that moment along came a boy pushing a bicycle followed by two men in a buggy. The horse became frightened and in endeavoring to turn out for the boy ran over a large boulder, tipping both men out and breaking the buggy.

The photographer, being a true "movie" man seized the opportunity to run our film on a "scene." Fortunately no one was hurt, and the film was such a good illustration of the results of bad roads that it was incorporated into the body of the "Road Building" film.

No one who has seen this film, which is an education in road building itself, can remain a passive non-supporter of the good roads movement. It contains scenes taken from actual construction, and shows the improvement and conversion by the best and most modern methods of our worst roads into the various types of smooth hard surfaced, easily traveled highways.

The Du Pont Company, always an ardent supporter of public movements, has made this film with a view of loaning it to responsible parties for showing at meetings of all kinds having for their objects the aiding of good roads.

ROAD DINNER IN KANSAS CITY.

A monster banquet, dedicated to the cause of permanent roads for Jackson county, took place on April 5. At 6:30 p. m. more than 500 of the leading citizens of Kansas City and Jackson county met in the banquet room of the Hotel Muehlebach for this "Good Roads Dinner." It was held under the auspices of the Chamber of Commerce and the automobile club and the invitations that were issued were signed by the presidents of the two organizations.

The program was an imposing one. As guests of the evening, Mr. Edward N. Hines of Detroit, Mr. Chas. C. Jacobus of Milwaukee, and Mr. William G. Edens of Chicago addressed the diners.

Mr. Hines is chairman of the board of county road commissioners of Wayne county, Mich. He told how Wayne county has handled the problem of the amazing increase of traffic on its roads and has built a system of permanent highways that stay put. Mr. Jacobus who is chairman of the road and bridge committee of the Milwaukee county board of supervisors told how Milwaukee county solved the highway problem. As president of the Associated Roads Organizations of Chicago and Cook County, Mr. Edens discussed how a \$2,000,000 bond issue was voted in Cook county and how the money is going into permanent roads. As president of the Illinois Highway Improvement Association, he told how Illinois is urging a bond issue of \$60,000,000.00 to build a state system of 4,000 miles of permanent roads.

In addition to these speakers there appeared upon the program several local officials of the county court and others who are behind the movement for good roads in the Central West.

It is sincerely hoped by those behind the movement that this dinner will be instrumental in placing Jackson county along side Wayne county and Milwaukee county in the history of permanent roads.

A NOTEWORTHY ROAD CONFERENCE.

Representatives of twenty-one states recently took part in a conference at Washington with the staff of Logan Waller Page, director of the U. S. Office of Public Roads, who has charge of the ad-

ministration of the Federal aid road law. They assembled in order to bring about greater uniformity in the requirements for the materials used in road building and maintenance. At present there are unnecessary variations in these requirements, which place a useless burden on their producers, increase their cost in some cases and render it difficult to apply the experience gained in one state to the problems of another.

It is unwise to carry standardization in road work beyond the point where conditions governing the selection of materials are uniform, for local differences exist which make it desirable to require for the same type of road materials differing in some respects. By means of this conference it has been possible to separate the features where there should be general agreement from those in which local conditions make it desirable to permit some latitude. The results are considered of great value, not only in enabling the U. S. Office of Public Roads to co-operate most closely with the various states through an intimate understanding of their special needs, but also in establishing greater uniformity in the road work done in the different states.

There are a number of organizations which have been devoting attention to standard specifications for road materials, and the conference adopted their standards when they were considered reasonably satisfactory. In the recommendations of the conference, the tests which were considered really necessary in order to show whether materials are satisfactory have been included, but no others. A large number of tests of road materials have been proposed but the number adopted by the conference is comparatively small. Moreover, the conference has not, as a rule, recommended limiting values for specific tests, because no one set of limits can be used satisfactorily in all parts of the country. What has been done is to bring standardization of materials up to the limits where it ceases to be desirable, and then to standardize the methods of testing and of reporting the results of tests where different requirements must be adopted to meet local conditions.

Other conferences will be called by the U. S. Office of Public Roads as a part of its program for becoming thoroughly familiar with the practice of different states in road building and for developing uniformly high standards for highway work throughout the country. Arrangements for printing the recommendations of the first conference have already been made by Director Page in order that they may be available for road officials as early as possible.

ELABORATE HIGHWAY SYSTEM PLANNED.

The Wisconsin state highway commission has drawn up one of the most elaborate systems of highways ever projected for consideration in this country. The plan has been submitted to the members of the legislature now studying the problem.

With the preponderance of traffic, as a criterion, two trunk line systems have been laid out, one of which is to contain 2,238 miles of roadway and the other 4,819 miles, and will cover the entire state of Wisconsin.

In five years, if the state meets the quota requirements of the national government, the sum of \$5,776,248 will be received from Washington. If the state is able to raise an equal amount, allowed that all incidental factors mature, Wisconsin will spend more than \$10,000,000 in five years in the construction of its trunk line roads.

Three factors are considered in the determination of apportionment among the various sections of the amount to be expended: First, the percentage of county area to state area; second, the percentage of public road mileage in a county to the total public road mileage of the state; third, the percentage of county valuation to the total valuation of the state.

SAND and GRAVEL

Hardpan and Clay We May Strike in 1917

It Behooves the Wise Sand and Gravel Producer to Take Stock of Conditions and Organize Accordingly—Practice Economy, Cooperate With the Rest of the Trade and Advance the Selling Price Proportionate to Increased Costs

BY E. GUY SUTTON,
Carmichael Gravel Co., Williamsport, Ind.*

IN considering this subject, it is interesting to trace the geological history of Indiana so far at least as it relates to the formation and disposition of gravel. However, suffice it to say in this regard that the glaciers were the first gravel producers to operate within the state. It was a cold proposition with them! The obstacles and unfavorable conditions which they met and overcame were many. In the course of their operations, they employed giant crushers having infinite capacity and for which no boulder was too large. Enormous conveyors were used which, as their business expanded, stretched from beyond the Great Lakes to at least the southern part of the state and, while the speed of these material carriers was not great, yet they were capable of carrying myriads of tons. Regardless of the advantage of an inexhaustible supply of water, the product of this "Glacial Gravel Co." was not clean enough to meet our present specification and, as a result of the crude and imperfect systems employed by them in washing and disposing of waste material, we find in their storage piles deposits of deleterious matter in sufficient quantities to be a cause of rejection in the mind of any intelligent inspector.

The most objectionable by-product of this ancient gravel-producing agency frequently occurs in the form of clay or hard pan and is found in three locations with reference to the main deposit of gravel:

1. As an underlying strata.
2. As an overburden.
3. In irregular pockets or streaks.

The underlying strata of clay or hardpan—usually the latter—gives no great concern to the present-day operator except that it may limit the depth of his bank. The overburden may be a source of annoyance and is expensive to remove, but it can be handled by ordinary methods of excavation. It is the irregular occurrence of clay within the body of gravel that causes the most trouble, for reasons with which all sand and gravel producers are familiar, but the uncertainty of its appearance and its extent is no doubt the greatest cause of anxiety, for determinable obstacles are easy to overcome in comparison with dealing with the indefinite which is invariably an expensive and grievous task.

If this subject were to be treated literally it might at least be made entertaining inasmuch as it would deal largely with natural phenomena which are always interesting. But, however, burdensome the conflict with hardpan and clay may be as an actual experience, yet there will be greater difficulties to overcome in the year 1917.

In August, 1914, the European war began. The world at large suffered the usual mental stages following a catastrophe—horror, tolerance, apathy. The first year of the war did not materially effect business conditions in the United States, because no one could realize the extent of the conflict. It will be noted from your cost records that there was no signal increase in the cost of production during the season of 1915 over that of previous years. But as soon as men became awake to the fact that the war was an actuality; when the resources of the belligerents both as to the necessities of life and the means

of death began to diminish and negotiations for the purchase of these supplies were started in the United States, then, as we all know, prices began to soar.

At the beginning of 1916, the steel mills, which are our national industrial barometer, commenced to work night and day. Many manufacturing concerns which had been operating with varying success began to assist in the making of munitions and in a few months' time became financially independent. Railroad stocks advanced in prices because lines that previously were operating at a loss were able to show indications of paying dividends. The heavy demands for foodstuffs at home and abroad, including both hogs and cattle, together with the exportation of horses and mules, brought the farmer's products into unusual prominence. Inactive coal and mineral mines were reopened and, these together with the active ones, were worked to the limit of their capacity in order to furnish fuel and metals for the manufacture of more machines and the construction of greater buildings that the wheels of industry might proceed. It was during this period also that emigration began and immigration ceased. If you will again refer to and compare your cost statement for 1916 with that of 1915 you will note, with some concern, no doubt, the result of this unusual stir in the industrial world.

But, whatever surprise you may have felt and exhibited when confronted with such an odious comparison, yet you are not awake to the actual conditions unless you are preparing yourself for a greater shock when comparing time comes at the end of the season which is just before us. Last year our costs would have shown a greater increase, had it not been that we had made favorable coal contracts and had laid in supplies and repairs early in the year before the abnormal advance in prices had been made. Then, too, the scarcity and independability of labor came gradually; this year we will encounter to begin with, not only a shortage of laborers, but also on account of the great demand for men on the farm, in the factory, on the railroads and every other line of work, a spirit of independence; restlessness and discontent will exist, resulting in inefficiency; labor will not only cost more, but it will be worth less.

Moreover, the best hope that the railroad officials give at the present time is that the car shortage will be as serious at the beginning of our operating season as it was at the close of last year. This opinion is supported by the following facts:

1. On account of the abnormal movement of freight, there is an actual shortage of cars suitable for shipping gravel.
2. Many cars are tied up by Eastern embargoes.
3. New equipment can not be secured as fast as worn out cars and locomotives are retired.
4. The railroads are short of motive power both for road hauling and switching at terminals, resulting in the slow movement of cars in transit and at destination.
5. Coal movements will continue in large quantities throughout the summer months, because of the heavy demands of the railroads and factories; besides much domestic coal will be delivered to both dealers and consumers and, no doubt, storage will begin early in the fall on account of the anticipated miner's strike after April 1, 1918.

6. Many coal cars are now being used for the transportation of high class freight, due to the shortage of box cars.

7. The present ruling that cars must move in the direction of "home" if it remains in effect, will operate to increase the shortage aside from its other complicating features.

Moreover, this anticipated car shortage will not effect outgoing shipments but will delay deliveries of coal and other supplies used in the operation of the plant as well.

And so, considering only the car supply and the labor conditions, the situation does not appear bright even to an optimist. But this is not all. You are already familiar with the advances that have been made in prices from your own experience in purchasing supplies, repairs and equipment so that a few examples of the rate of increase during the past year and a half will be sufficient to show the general trend with reference to prices of articles which enter into our cost of production: Nails have advanced 77 per cent; bolts, 154 per cent; sheet steel, 144 per cent; manganese parts, 47 per cent; wire rope, 40 per cent; belting, 17 per cent; pipe fittings, 62 per cent. Moreover, a reduction in quality has been made in many articles, which is equivalent to an advance in price; it is a known fact that some manufacturers have resorted to this practice in order that ostensibly they may have the reputation of maintaining former prices. New equipment has not only advanced in price from 20 per cent to 100 per cent, but it is impossible to get reasonable deliveries of electric machines, boilers, steam shovels, locomotive cranes and industrial locomotives, all of which are prime requisites in the operation of most plants. This later condition has placed second-hand equipment at a premium, so that a used machine brings almost as much as new if it can be delivered promptly.

That the price of coal will range from \$1.75 to \$2.50 a ton at the mines, according to the grade, even for summer deliveries, is generally accepted. This is an advance in price of at least 100 per cent above what was paid last year.

Though it will be impossible to reckon with any degree of accuracy just how much our cost of production will be affected by the conditions which now beset us, yet it may be worth while to make some sort of calculations, even if they be based on facts and fancies in indeterminate proportions. In analyzing the operation statement for 1916 of a firm operating a representative gravel plant in Indiana the items of cost were found to obtain as indicated below:

Item.	Percentage of cost.	Estimated rate of increase.	Percentage of increase.
Labor	32.1	25%	8.0
Stripping	10.0	25%	2.5
Fuel	10.4	100%	10.4
Supplies and repairs..	14.7	50%	7.4
Expense	12.0	10%	1.2
Royalty	2.8	....	...
Depreciation	5.3	....	...
Administration	12.7	5%	.6
	100.0	....	30.1
Factor of safety.....			10.0
			40.1

Though there may be a divergence of opinion as to what the advance will be for each item of cost

*Address at meeting of Indiana Sand and Gravel Producers' Association, Indianapolis, March 15.

this year as compared with last year, yet that there will be a material increase no one will deny. The firm from whose records the above percentages were obtained has estimated that the rate of increase will be as indicated in the foregoing table, whereby it is determined that the total cost of production will be approximately 30 per cent greater for 1917 than it was in 1916. Moreover, on account of the ever-changing situations which confront this country whereby we may be drawn into the whirlpool of disaster at any time, there exists an element of doubt as to how to proceed in our industrial world which is analogous to the troublesome "Hardpan and Clay" when it occurs irregularly and with indefinite extent in the pit. There is no intelligent way to solve this equation of uncertainty but that it must be considered in making estimates of cost is obvious. And so, arbitrarily, we may add 10 per cent to our percentages already obtained which might be termed a "factor of safety."

The estimate of 40 per cent advance which may have been obtained by a more or less illogical method may be far from right. To be prepared to meet the anticipated raise and still make a legitimate profit is a question of more serious moment than to try to form an opinion as to how much more money we will spend this year than last year. There are three ways which if combined will allow us to meet this situation:

1. By practicing economy in every possible way.
2. By hearty co-operation among the members of this association.
3. By advancing the selling price proportionate to the increase in cost.

Optimism, caution and co-operation are three great factors contributing to business success. Neglecting to incorporate either one of them in your business affairs during this period of storm and stress may mean failure, but to sell without profit is sure to bring disaster. The following exposition on "Selling at a Profit" was printed in a trade journal a few years ago and seems to be appropriate for reiteration here:

Selling goods without profit is injurious to manufacturer, jobber, retailer and consumer.

It destroys reputation, depreciates quality and leaves ruin and demoralization in its path.

It is the father of deception, misrepresentation and business hypocrisy.

It creates strife, discord, distrust and dishonesty.

It opens the doors of bankruptcy and closes gates of opportunity.

It deprives honest effort of reward and puts a premium upon lying inconsistency.

Its pernicious influence forces all to a common level.

Don't cut—stick to your prices!—The Dodge Idea.

While it is the purpose of this paper to urge upon you the necessity of guarding your selling, yet advantage should not be taken of a situation to advance prices on false pretenses. It will be better

business judgment to be content with reasonable profit now obtained from prices which can be maintained rather than in reaction to be compelled to lower prices when normal conditions are restored. Unfairness with reference to determining prices will not only bring the sand and gravel business, as well as any other, into disrepute, but will also discourage and delay construction work during a year when prospective builders are hesitating because of the uncertain conditions which prevail. Keep your prices up, but be fair.

PITTSBURGH SAND MARKET ACTIVE.

Pittsburgh, Pa., April 15.—The sand business in Greater Pittsburgh is going along very nicely. Prices are all that anybody could wish. In fact, it takes a man with nerve sometimes to make a quotation to an old customer. Prices are higher than last year. The cost of labor, engineers and the machinery and equipment has increased tremendously during the past two years and sand companies, whether their business be large or small, have been forced to the necessity of raising their prices for their product. All the companies in the Pittsburgh district are now fairly busy. There is not so much sand going to ordinary building operations as for repair and construction work at the big plants and especially for railroad and river work.



THIS IS A PHOTOGRAPH WHICH SHOWS AN INSTALLATION THE TROY WAGON WORKS CO. HAS WITH THE NEW YORK STATE HIGHWAY DEPARTMENT OF ALBANY, N. Y. THIS TRAILER IS OF 5-TON CAPACITY, REVERSIBLE TYPE, EQUIPPED WITH 7-INCH RUBBER TIRES AND 4-YARD TWO-WAY SIDE DUMP. IT IS BEING PULLED BY A 3-TON PACKARD TRUCK.

DEMAND STRONG—PRICES FIRM.

Cleveland, Ohio, April 19.—Seldom in the history of the business in this district has there been such a demand for sand and gravel as there is now, with the improvement in weather conditions. In spite of the continuance of the lockout in the building trades, and consequent suspension of active operations, demand for these materials continues, and practically every producer in the district is turning down orders, being unable to meet the business. Supplies in stock are sufficient to meet current requirements. All prices are firm, although unchanged. Weather and labor continue favorable to the business.

CALLAHAN'S BIG NEW PLANT.

Cleveland, Ohio, April 15.—One of the biggest individual projects planned for the coming season in the building materials industry of the district is the extension of the plants of the firm of M. A. Callahan—The Sand Man. Installation of a new plant entirely at Willow, Ohio, will be the first project taken up. Preparations now are being made to build a new dredge, which is expected to be running by June 1. For the new plant at this point 30 acres have been acquired, with frontage on both the Cuyahoga river and the Baltimore and Ohio railroad. A feature will be the modern washing devices now being designed under the direction of Mr. Callahan. Every department will be operated

electrically. When complete and in full operation the capacity of this new plant will be 25 cars a day.

At the Chagrin Falls plant of the company operations have been resumed after a shutdown of practically three months. This was due to bad weather, not to letup in demand.

PURCHASES 50 ACRES OF GRAVEL LAND.

Rockville, Ind., April 5.—The Macksville Gravel Co., composed of R. H. Cubbins, of Paris, Ill., H. E. Ensinger, of West Terre Haute, H. L. McGurk and E. L. Shansberger, of Terre Haute, has purchased 50 acres of land south of the C. I. & W. railroad near Montezuma for a consideration of \$290 an acre. Work will begin at once surveying for switches to a gravel plant. About \$50,000 will be invested in switches, machinery and necessary improvements on the tract.

SAND PRICES SOARING.

The prices on sand are likely to go considerably higher this summer. Everything that goes into the sand business, except the sand itself, has gone away up in price. Engineers at the plants and on the river boats are getting much larger wages than ever before. Common labor is paid fully 40 per cent more than 18 months ago. Added to these troubles the sand companies are having great difficulty in getting shipments in many places. Work on the river is being pushed rapidly. A large

amount of dredging is being done by all local companies and all the concerns that are operated in Pittsburgh are reported to be busy.

The city of Pittsburgh is finding that sand costs more money this year. Director of Supplies Franklin B. Booth recently took bids for the 18,000 tons of sand which the city will use this year in its asphalt business and for other purposes. Three bids from three different local concerns were received each for \$2.30 a ton. Last year the price was only 50 cents a ton. The city was expecting to pay in advance but the bids which came in were so high that Director Booth readvertised. The first bidders did not submit bids a second time. The only bid received was one from the Kelley Island Lime & Transport Co., of Cleveland, Ohio, which offered to furnish sand at \$1.71 a ton, the freight being \$1.36 a ton. This leaves the Cleveland company only 35 cents a ton clear for its product and saves the city of Pittsburgh more than \$10,000 providing the city authorities agree to award the contract to the Kelley company.

SAND AND GRAVEL INCORPORATIONS.

The Greenville Gravel Co., of Greenville, O., has increased its capital from \$250,000 to \$750,000.

The St. Clair Mining Co., Pittsburgh, Pa., to mine and sell sand and stone and other minerals; incorporators, J. E. White, W. G. Weimer and T. M. Gealey.

CEMENT

Annual Production of Cement in Canada

The United States Supplies Most of the Cement Imported by Canada, But Home Producers Supply Almost Entire Demand

Ottawa, Ont., April 15.—The quantity of cement made in 1915, according to a bulletin just published by the Department of Mines, at Ottawa, Ont., was 5,153,763 barrels of 350 pounds net each (901,909 tons), as compared with 8,727,269 barrels (1,527,272 tons) made during the previous year, which is a decrease of 3,573,506 barrels (625,364 tons), or nearly 41 per cent.

The total quantity of Canadian Portland cement sold in 1915 was 5,681,032 barrels (994,181 tons) as compared with 7,172,480 barrels (1,255,184 tons) in 1914, a decrease of 1,491,448 barrels (261,003 tons) or 20.8 per cent.

The total consumption of cement in 1915, including Canadian and imported cement, was 5,709,222 barrels of 350 pounds each (999,114 tons), as compared with 7,270,502 barrels (1,272,338 tons) in 1914, a decrease of 1,561,280 barrels (273,224 tons) or 21.5 per cent.

The production of cement in Canada during the past few years, though all classed as Portland, has included an output of Puzzolan cement, made from blast furnace slag at Sydney, N. S., and a small production of "natural Portland," made at Babcock, Manitoba, 75 miles southwest of Winnipeg, on the Canadian Northern railway. The slag cement plant at Sydney has, however, been idle during the past two years.

The production of cement in 1915 was derived from 20 plants, three of which though idle, made shipments from stock. Nine other plants were idle throughout the year and made no shipments. The total daily capacity of the 29 completed plants was 51,415 barrels. The year's production was less than one-third the capacity of available plants.

The completed plants were distributed as follows: One in Nova Scotia, using blast furnace slag; three in Quebec, using limestone and clay; sixteen in Ontario, of which ten used marl, and six limestone; two rock plants in Manitoba, one of which makes a "natural Portland"; four in Alberta, including one marl plant and three limestone plants, and three rock plants in British Columbia.

The average number of men employed in Canadian cement plants during 1915 was 1,686, and the total wages paid \$1,184,459. In 1914 the average number of men employed was 2,977 and wages paid \$2,271,006.

In 1914 the output exceeded the sales, but this position was reversed during 1915, and a reduction in stocks at the end of the year amounting to 565,156 barrels is noted. The average price per barrel at the mill for all plants has been steadily falling, being \$1.23 in 1915, as against \$1.28 in 1914; \$1.27 in 1913; \$1.27½ in 1912, and \$1.34 in 1911. The average price at the mill in the several provinces was: Quebec, \$1.18 in 1915 and \$1.17 in 1914; Ontario, \$1.08 in 1915 and \$1.10 in 1914; Manitoba, \$1.84 in 1915 and \$1.83 in 1914; Alberta, \$1.78 in 1915 and \$1.89 in 1914; British Columbia, \$1.70 in 1915 and \$1.67 in 1914.

The imports of cement in 1915 again show a large falling off, over 71 per cent, from the imports in 1914, while the average price of imported cement has fallen from \$1.61 in 1913 to \$1.50 in 1914, and \$1.43 in 1915.

Of the total cement made in 1915, 429,268 barrels were made from marl and 4,724,495 barrels from limestone, whereas in 1914 the quantity made from marl was 641,369 barrels and 8,085,400 barrels from limestone and slag. In 1913, 1,491,131 barrels were made from marl and 7,395,202 barrels from lime-

stone and slag. In 1912, 1,420,155 barrels were made from marl, and 5,720,849 barrels from limestone and slag; while in 1911, 1,626,857 barrels were made from marl and 4,050,682 barrels were made from limestone and slag. With the exception of the new plant at Marlboro, Alberta, practically all of the newer plants erected during the past few years have been limestone plants. The proportion of cement made from marl in 1908 was about 45 per cent of the total output as compared with 28 per cent in 1911, 20 per cent in 1912, 16.8 per cent in 1913, 7.3 per cent in 1914, and 8.3 per cent in 1915.

Imports and Exports.

The quantity of cement exported is not recorded, but the value in 1915 is reported as \$5,161, as against a value of exports in 1914 of \$2,223, and \$1,739 in 1913.

The imports of cement previous to 1901 were larger than the Canadian production, but gave way steadily to the increasing domestic output until 1909, during which year the imports amounted to 142,194 barrels, or about three per cent of the Canadian consumption. From 1910 to 1912 inclusive there was a steady increase in the importation of cement, the imports in 1912 being 1,434,413 barrels. During four and one-half months of 1912 the duty was, on account of the scarcity in western Canada, reduced by one-half, and on May 31, 1913, a permanent reduction was made in the general tariff from 12½ to 10 cents per hundred pounds. The imports, however have fallen to 254,093 barrels in 1913, 98,022 barrels in 1914, and 28,190 barrels in 1915.

The United States has been the principal source of imports during the past few years and supplied over 96 per cent of the imports in 1915, as compared with about 4 per cent from Great Britain. In 1914 about 71 per cent and in 1913, 68 per cent of the imports were from the United States.

Consumption of Cement.

The consumption of cement is represented practically by the domestic production, together with the imports, the exports being so comparatively small as to be negligible. The total consumption of cement in Canada in 1915 was 5,709,222 barrels (999,114 tons), made up of 5,681,032 barrels (994,181 tons) of Canadian cement and 28,190 barrels (4,933 tons) of imported cement, the Canadian cement representing 99.5 per cent and the imported cement 0.5 per cent of the total.

In 1914 the total consumption of cement was 7,270,502 barrels (1,272,338 tons), made up of 7,172,480 barrels (1,255,184 tons) of Canadian cement, and 98,022 barrels (17,154 tons) of imported cement, the Canadian cement representing 98.7 per cent, and the imported cement 1.3 per cent of the total.

In 1913 the total consumption of cement was 8,912,898 barrels (1,559,757 tons), made up of 8,658,805 barrels (1,515,291 tons) of Canadian cement, and 254,093 barrels (44,466 tons) of imported cement, the Canadian cement representing 97.1 per cent and the imported cement 2.9 per cent of the total.

CEMENT THE POPULAR BUILDING MATERIAL.

Milwaukee, Wis., April 18.—"Cement is becoming the popular building material, not only in the city, but for the farm and suburban residence, where it is running far ahead of wood construction," declared Charles D. Clugston, prominent Milwaukee building material man recently, giving his opinion on the construction situation throughout

the country. "Although our forests are being depleted by the lumberman and the fires that sweep over the great timber belts, building operations will not be menaced by this destruction. A substitute for wood has been found that has given us better buildings at prices that the dealer in lumber cannot approach. That material is cement. It is fire-proof so far as any material can be. Fire, of course, is not the only menace with which the farmer has to contend. There is the rat and other vermin, against which concrete foundations and walls are demonstrating themselves as effective barriers.

"Sanitation is a great word at the present time. The farmer supplies milk and other dairy products to hundreds of thousands. Cement and concrete construction is the solution of the cleanliness problem."

CEMENT ADVANCES AT CLEVELAND.

Cleveland, Ohio, April 20.—In spite of the reduction in outlet for cement during the lockout, there has been a slight advance for this material here, due to the continued increases in cost of production. This situation has been aggravated by the absence of improvement in the car shortage, and was demand at the moment normal, shipping conditions would virtually prevent anything like real business being carried on. Producers and dealers are awaiting the outcome of the lockout before committing themselves on future deliveries.

SHIPPING CEMENT IN COAL CARS.

Because of the freight car shortage, shippers of Portland cement have used every available means to deliver their products to the retail trade. Where regular box cars could not be secured, cattle cars have frequently been used. What amounts to really a novelty, forced by necessity, is the present experience of southern cement plants. Recently they have been shipping a great deal of cement in coal cars, covered with tarpaulins. The plants report that the loss is practically nil, although some of these shipments have gone through two and three days of hard rain.

RIVERSIDE COMPANY INSTALLS NEW CRUSHER.

Riverside, Cal., April 16.—The Riverside Portland Cement Co., at Crestmore, has begun the construction of a new rock crusher, to cost \$75,000, which has been made necessary by the increase in the company's business. It is planned to complete the crusher by July 1. The plant is now being operated to its full capacity.

NEW CEMENT PLANT FOR PALO ALTO.

The Pacific Portland Cement Co. contemplates building a large plant to work a hill on the Monte Bell road which, according to chemists employed by the company, contains enough limestone to be worked profitably. A plant employing between 1,500 and 2,000 men is under consideration.

The new standard specifications and tests for Portland Cement of the American Society for Testing Materials, effective Jan. 1, 1917, were approved by the American Railway Engineering Association at its recent convention in Chicago.

CLAY PRODUCTS

FIRE BRICK COMPANY INCREASES WAGES.

The A. P. Green Fire Brick Co., Mexico, Mo., has increased the wages of every one of its 420 employees 10 per cent. Coincident with this came the announcement that guards will be stationed at the brick plant during the night to prevent possible damage by alien plotters. It was pointed out that the plant ships great quantities of fire brick to munition plants and in the event of hostilities, an effort might be made to destroy or damage the machinery. "Fire brick is the foundation for munition works," said A. P. Green in an interview recently, "and we are taking no chances. We have two nightwatchmen now and five armed guards will be added. The brick plant's payroll now is approximately \$5,000 a week. The plant is turning out 100,000 brick a day. Twenty-two kilns are used." There were five kilns when A. P. Green bought the property six years ago.

NO FLAT BRICK RATE LIKELY.

Dow's Building Service of New York says: "Dealers in making quotations covering May, June, July and August brick shipments have been banking on lower prices. They are advised that an estimate for deliveries prior to Aug. 1 should be in the neighborhood of \$10. The present \$10 level for Hudson and Raritan common brick is stiff and firm. There were en route recently 2,800,000 brick from the Hudson district. With 2,400,000 brick left over there is available this morning some 5,200,000 brick, with dealers' stacks considerably depleted. Normally, coal dealers are hungry for brick manufacturers' business at this time of the year, but at present soft coal quotations run from \$5 to \$8 a ton. Normal prices for this material range from \$2.90 to \$3.50. Manufacturers have just been advised of a further increase in towage rates between this city and the Hudson plants, and there is a tremendous inquiry from New England and other out-of-town points for brick by rail. Labor is hard to obtain, and it is probable that new brick will not be available for this market prior to June 15, if then. The renewal of agitation to fix a flat price for brick to cover summer and winter requirements has little chance of being adopted this year. Navigation on the Hudson has reopened to Albany, but, on account of spring freshets, tows are not being taken from points above Coeymans."

LABOR SCARCITY HANDICAPS BRICK MAKERS.

Pittsburgh, Pa., April 15.—Brick business is handicapped at present by two circumstances. One is the scarcity of real good labor. Every employer complains that the quality of labor this spring is far below what it has been in any former year in this district. Common labor is especially poor. All skilled labor is well employed and the really skillful mechanic in any line can select his place to work and practically get his own price. The other trouble is that the brick manufacturers cannot secure cars so that they can get their product delivered promptly to their customers. They are up against the proposition worst in getting shipments from the East to the West. Ohio plants are not so badly off as most of them have been able to get pretty fair service on the railroads for shipments going east.

The Acme Press Brick Co., Denton, Texas, has begun work on a \$20,000 tile plant to be operated in connection with its brick plant. The brick plant has resumed work with the completion of the power plant recently burned. Eighty-five men are employed and as soon as additional machinery can be received the number will be increased to 125.

NEWS OF THE FIELD.

The Midvale Steel Co., Pittsburgh, Pa., has taken over the plant of the Claysburg Brick Works, which was a comparatively new industry in Holidaysburg, Pa. The plant will be greatly enlarged and improved at once.

The Clay Castings Co., New Cumberland, W. Va., now has its big plant in operation and is employing more than 100 people.

Permits were recently taken out by the P. Bannon Pipe Co., of Louisville, Ky., for a number of improvements to its plant, where two one-story pipe kilns, and a one-story brick and tile shop and office will be erected. The company has a big battery of kilns already in operation, manufacturing wall coping, patent lidded conduit pipe, drain tile, fire lining, chimney tops, hollow tile, vitrified brick, fire brick, building and face brick, etc.

Progress in the erection of the half-million-dollar fire brick plant of the General Refractories Co., of Olive Hill, Ky., has been held back somewhat by labor troubles during the past few weeks. The plant burned a few months ago, and is being rebuilt on a larger scale.

The Louisville (Ky.) Brick Manufacturers & Dealers' Association, a new organization of manufacturers and general supply men, is now holding regular weekly meetings, and is accomplishing a great deal. Credits are among the most important things that have been taken up so far. The association is also figuring on drafting a series of resolutions relative to the relations between the contractor, builder, architect, owner and material supply house.

The demand for fire brick for use in rolling mills, iron and steel plants, battleship fire linings, etc., has been so great during the past few weeks that the Louisville Fire Brick Co., Louisville, Ky., has gotten to a point where it no longer considers it a novelty to turn down large orders. The company has for months been working on some big Government contracts for fire brick for use in battleships, marine yards, etc., and from present indications the ship-building demand will increase considerably over what it has been. Reports from the East relative to the construction of hundreds of new vessels means that the fire brick plants of the country will be still further taxed to supply the demand.

The Tennessee Agricultural Lime & Brick Co. is planning to erect a plant at Newport, Tenn., to manufacture brick, drain tile, limestone fertilizer, etc. The proposed capacity of the plant will be 200,000 brick a day, 50,000 to 75,000 four-inch drain tiles and 100 tons of lime dust. Officers of the company are Henry F. Gau, of Cincinnati, president, Henry F. Rutzler, Atlanta, vice president; Howard Gau, of Cincinnati, secretary-manager, and Ivo Howard, Louisville, Ky., treasurer. About \$100,000 will probably be expended in the initial buildings and machinery.

The Harbison Walker Refractories Co., Pittsburgh, Pa., will build a new brick plant and also fifty houses near Surveyor Run, Pa.

The United Brick Manufacturers of Johnstown, Pa., are advertising in Pennsylvania papers for men, especially men with families, to work in their brick factories in the Johnstown district. They offer to advance transportation and to pay good wages this summer.

A new tile works will be built at Bridgeburg, Pa., on the Pittsburgh & Shawmut railroad. The company is capitalized at \$150,000. About 100 acres of land known as the Robert Quigley Farm will be the place of operation. The new company has been incorporated by the following capitalists: Samuel Houston, Craig Houston, V. Q. Starr, George M. Evans, John Crossett Jr., I. T. Campbell and H. N. Sankey.

The Ohio State Legislature, which has been considering an appropriation of \$300,000 to build a brick plant at Athens, Ohio, is not likely to get this measure through. T. E. Davey is president of the state board of administration.

The Haws Refractories Co., Johnstown, Pa., has completed the deal amounting to \$800,000 for the Ganister property in the Lewistown Narrow and also for the big brick making plant of A. J. Haws & Co. at Johnstown, Pa. A new plant to cost \$250,000 will be built in the Lewistown Narrows at once.

The Jeannette Brick & Sand Co., whose operation east of Grapeville, Pa., was discontinued about two years ago, has recently resumed operations and will keep on working steadily this year. The officers of the company are as follows: Frank Lutz, Dr. C. C. Robinson and Archibald Sproul.

The Peerless Clay Co., in which capitalists of Toronto, Ohio, are largely interested, is having a splendid run of business at its mines at Langley, S. C., which are being operated to capacity.

The Paducah Brick & Tile Co., Louisville, Ky., has resumed operations after being closed down for several weeks on account of high water in the Ohio and Cumberland rivers, the water getting into the plant to some extent.

The Indiana Paving Brick & Block Co., Brazil, Ind., of which Walker Winslow is the head, has resumed operations after a close-down of several months, in which the plant was thoroughly remodeled and a lot of new machinery installed.

GIRL WRITES PRIZE ESSAY ON TILE.

Cleveland, Ohio, April 20.—Awarding of the prizes for essay use of hollow tile in residence construction, offered by the Barkwill-Farr Co., was made this week. First prize of \$100 went to Miss May M. J. Fitzgerald, 1219 East 83rd st., this city, her brief being considered the best from every standpoint. Close to 700 essays were received by Sales Manager Robert C. Mitchell, who started the plan and headed the movement to carry it through. Three other large prizes and forty small prizes for honorable mention were awarded.

NEW CLAY INCORPORATIONS.

The Phoenix Coal & Clay Co., Augusta, Ky.; capital, \$16,000; incorporators, Lewis H. Wolfe, A. L. Barker and Ben Harbeson.

The Ashland Fire Brick Co., Ashland, Ohio, has increased its capital from \$200,000 to \$400,000 in order to extend its operations.

The White Clay Mining Co., Pittsburgh, Pa., to engage in mining clay and manufacturing brick; incorporators, H. F. Miller, James Kearns and J. W. Harshey.

The Bluefield Brick & Tile Co., Bluefield, W. Va.; capital, \$25,000; incorporators, Charles K. Mustard, W. L. Mustard, C. S. Dieffenderfer, D. K. Douglass and R. B. Parrish, all of Bluefield.

The Puritan Brick Co., Vinton county, Ohio, has increased its capital from \$10,000 to \$375,000.

The Castle Clay Co., New Castle, Pa., to mine clay and manufacture brick; incorporators, Fred R. Kanengeiser, Paul Kanengeiser, S. D. Pearson and C. H. Cakes.

The Laurel Run Refractories Co., Bellefonte, Pa.; incorporators, J. Ellis Harvey, Ivey L. Harvey, C. W. Kellery, Ellis L. Orvin and E. D. Zerby.

The Continental Clay Products Co., East St. Louis, Ill.; for the manufacture of brick and other clay products; incorporators, John Keeley, H. H. Lamar, T. J. Canavan, J. K. Walton and R. E. Gillespie.

GYPSUM PRODUCTS

NOVA SCOTIA GYPSUM MINES.

R. U. Anderson, deputy inspector for Nova Scotia, in reporting on the quarries in his territory says their total output for 1916 was 279,400 tons. Of the different quarries he says:

"The Quarry at St. Anne's, Victoria county, owned and operated by the Victoria Gypsum, Mining & Manufacturing Co., Ltd., is about to be abandoned, a gypsum mine being opened. This is the only gypsum mine in Nova Scotia. It was begun in the summer of 1916. The mine, when I visited it, Aug. 24, consisted of an adit, driven into the base of a hill, 180', and a slope, pitching 30°, driving to join the adit. The slope is about 8' wide inside of the timber and averages 8' high. It is securely timbered down to the gypsum, which I examined carefully and tested in a number of places. The roof and sides, which are gypsum, I found solid and apparently safe.

"The adit is the same width as the slope, and is timbered as far as the rock, with round timber about 6" in diameter. A 'kettle-hole' occurred 85' from the entrance of the adit; this hole will be timbered closely to keep the mud from running into the mine. The adit will drain all the workings.

"The gypsum is hauled in the slope in a half-ton sinking-car, the pitch of the slope giving height for a tippie to the shipping-cars. About 2 per cent of the product is lost in handling.

"The quarry and calcining mill at Iona, Victoria county, is owned by the Iona Gypsum Co., Ltd., and is about two miles north of Iona station on the Washabuck road. The quarry produces 35 tons of crude gypsum a day and about 85 per cent of this is calcined; between 15 and 20 per cent lost in mill-

ing. The property is estimated to contain 25,000,000 tons of gypsum. The quarrying is all done by hand and work continues the year round. The output for the year is 6,012 tons.

"Ottawa-Brook quarry, owned by the Newark Lime & Cement Co., is about two miles west of Ottawa Brook Station on the C. G. R. This quarry produced 925 tons during the year, but no shipments were made, due to the scarcity of vessels. The railway was extended about a mile and a half to a larger deposit of gypsum and the company intends to make larger shipments next year.

"Avondale quarry, Avondale, owned by the Newport Plaster, Mining & Manufacturing Co., is about three miles from Avondale, and is connected with the shipping wharf at Avondale by a railway. The quarry is being prepared for an aerial line which will extend about 500' across a deposit of good gypsum. The production for the year is 42,739 tons. Seventy-five men and 17 horses were employed during the year. The product was shipped to J. B. King Co., New York.

"Wentworth Gypsum Co.'s quarries, Wentworth, produced last year 185,464 tons. The Fraser quarry of this company is the largest gypsum quarry in Nova Scotia and is worked open face to a depth of 100'. The product is lifted to the cars by aerial cables, 500' between the towers. There is an engine 10" by 15", and 75 h.p. at each tower. The plant is in good condition. The product is shipped to New York.

"Patterson quarry, Kent Shore, is a comparatively new quarry, having been operated for two years. There are 10 men and 5 horses employed during the year. The quarry is about one and a half miles from tide-water on Minas Basin and a corduroy road,

with plank wheel-ways for carts, connects the quarry with the pier. The plaster is of first-class quality and is shipped in its crude state to the United States. The output for the year is 1,200 tons.

"Walton quarries, Walton, are two quarries operated on this property, which produced during the year 21,425 tons. The gypsum is shipped in the crude form at Walton, over a railway about three-quarters of a mile long. About 40 men are employed this year, as against 60 employed the year before.

"The Windsor Gypsum Co.'s quarry at Wentworth did not begin operations until August, when 1,000 tons of gypsum were mined and sent to the Windsor Plaster Co.'s mill at Windsor. The output was 3,700 tons; 12 men were employed."

CANADIAN GYPSUM PRODUCTION IN 1916.

The total quantity of gypsum rock quarried in Canada in 1916 was 422,741 tons, of which 92,864 tons were calcined. The shipments of gypsum of all grades totaled 341,618 tons, valued at \$730,831, and included lump 249,759 tons, crushed 15,680 tons, fine ground 6,057 tons, and calcined 70,122 tons.

In 1915 the quantity quarried was 505,989 tons, of which 84,763 tons were calcined. The shipments included: Lump 346,947 tons, crushed 48,735 tons, fine ground 6,453 tons, and calcined 72,678 tons, or a total of 474,815 tons, valued at \$854,929.

Exports of crude gypsum were 221,234 tons, valued at \$252,476, while exports classed as gypsum or plaster, ground, rose to a value of \$154,630. The corresponding exports in 1915 were crude gypsum 292,234 tons, valued at \$336,380, and gypsum or plaster, ground, valued at \$80,933.

LECTURES ON HYDRATED LIME.

Cleveland, Ohio, April 15.—With a view toward stimulating further interest in hydrated lime a special lecture on this material was delivered here by Bela Nagy, chief engineer of the hydrated lime bureau of the National Lime Manufacturers' Association, Pittsburgh, before the Cleveland Engineering Society, April 10. The lecture was illustrated with slides showing the use of hydrated lime in concrete. An exceptionally enthusiastic audience received direct information upon a subject, upon which they already thought themselves well posted. This information was added to in a discussion which followed the lecture, and in which Mr. Nagy answered questions. Mr. Nagy has been heard in other parts of the country on this subject. He is a member of the American Society of Mechanical Engineers.

IT MIGHT BE WORSE.

Cleveland, Ohio, April 18.—Owing to the lockout the lime market in the Cleveland territory is now practically at a standstill, as far as sales are concerned. Because of the railroad situation this has not been a detriment, as with anything like normal demand the trade could not meet the business, being unable to make shipments. So far there has been no alteration in prices, all descriptions being firmly maintained at the former level. However, natural increase in cost of explosives, due to the national crisis, may be a factor in bringing higher prices. In agricultural lime there is a bigger outlet than

ever, due to the movement for increased production of foods. Ohio is now awake to the advantages of this material in the farming business. Much more of this material could be disposed of for this purpose were shipping conditions at all reasonable.

NEW YORK SAND AND GRAVEL ACTIVE.

New York, April 18.—With the opening of spring and the numerous calls for concrete construction the sand and gravel market is unusually active. Crushed stone men also report business as good. Screened and washed Cow Bay sand is quoted 50@55 cents in wholesale lots of 500 cubic yards alongside dock Manhattan. Inch-and-a-half gravel is quoted nominally at \$1.10 in 500 cubic yard lots f. o. b. alongside dock New York wholesale. Paving gravel is quoted (nominal) \$1.25@— and P. S. C. gravel @1.25. Inch-and-half trap rock is quoted at a dollar, and three quarter inch at \$1.20 in 500 cubic yard lots f. o. b. alongside dock New York.

ARKANSAS COMPANY EXPANDS.

The Rogers White Lime Co., Rogers, Ark., is putting in a branch at Watts, Okla., and will have the two-kiln plant ready for operation before the end of April.

NEW LIME INCORPORATIONS.

The Walker Springs Lime & Mineral Co. has filed incorporation papers in the probate court at Mo-

bile, Ala. The concern will quarry stone and manufacture lime and deal in gravel and minerals. It is capitalized at \$100,000 and will have headquarters in Mobile. The incorporators and officers are Paul P. Lockling, president; Jacob Markstein, vice president; Clarence A. Crim, general manager, and Alfred Garner.

The Cedarville Lime Co., Cedarville, O., capital, \$25,000; incorporators, Harry S. Iliff, Walter C. Iliff and others; to operate a plant for the production of lime.

NATIONAL FIRE PROTECTION ASSOCIATION.

The annual meeting of the National Fire Protection Association will be held in Washington May 8-10. The complete program has not yet been given out, but will be mailed to those interested on application to Secretary F. H. Wentworth, 87 Milk street, Boston. It is announced, however, that the sessions of May 8 and 10 will be held in the new Willard hotel, and that Wednesday, May 9, will be spent at the Bureau of Standards, the program there including column and panel tests and inspection of the laboratories, with luncheon at the bureau.

A forty-page illustrated booklet on the subject of prepared roofing and asphalt shingles, prepared by S. F. Berry, will be mailed to members who desire it if they will write to the Prepared Roofing & Shingle Manufacturers' Association, S. F. Berry, field secretary, 166 Devonshire-st, Boston, Mass.

WITH YOU and ME

The Northwestern Roofing Co. has moved to new offices and warehouse at 2224 First av., Seattle, Wash.

L. Hitchcock, of the Federal Lime and Stone Co., Cleveland, O., has returned from an important business trip to Adrian, Mich.

Charles Weiler, vice-president of the Western Lime & Cement Co., Milwaukee, Wis., is planning a trip to the Southland.

Two sons of Christ Sarnow, president of the Sarnow Lime Co., Milwaukee, Wis., have enlisted in aid of the nation.

W. W. Fischer, of the Fischer Lime & Cement Co., Memphis, Tenn., is the head of an organization formed to boost home building.

The Federal Lime and Stone Co., Cleveland, Ohio, has removed from 1529 Williamson Bldg., to larger and more convenient quarters in suite 1308 Williamson Bldg.

The Portland Cement Association has moved its Kansas City office from the Commerce Bldg. to the Rialto Bldg.

The Edison Portland Cement Co., of New Village, N. J., has advanced the wages of all employees one cent an hour beginning April 1. The company has also decided to pay bonuses.

The Southern Lumber Co. is a new organization at Newark, N. J., to deal in lumber and building materials. It is capitalized at \$25,000.

W. F. Jahn, president of W. F. Jahn & Co., has just returned from a four-corner trip of the United States, covering a period of six weeks. Mr. Jahn went from Seattle to Los Angeles, thence to New Orleans, from there to New York, and then home.

H. Te Roller, Seattle, Wash., dealer in building specialties, has moved his office to 111 Grand Trunk Pacific Dock.

The Milwaukee office of the Portland Cement Co., 1022 First National Bank Bldg., recently was host to a party of Texas good roads boosters who are on a tour over the famous macadam and concrete highways of Milwaukee county.

The Eagle River Concrete and Construction Co., Eagle River, Wis., has placed an order for a large quantity of new machinery for its plant on the north shore of the Eagle river.

James J. Boland, of Scranton, Pa., and interests allied with him have purchased the National Lumber Insurance Co., of Buffalo, N. Y., which was incorporated in 1905. It is capitalized at \$200,000. James J. Boland, president of the James J. Boland Agency, has been elected president. Some of the original stockholders will retain their holdings in the reorganized company.

Many readers of ROCK PRODUCTS AND BUILDING MATERIALS are holding political offices, while others are acting as officers of public institutions. The latest news of a member of the craft entering this field comes from a Chicago newspaper, which says: "John J. Sloan, president of the Wisconsin Granite Co., is doing good work as a member of the Bridewell

commission. As superintendent of that institution at one time he is now so familiar with its needs that his advice and knowledge is of great value in its conduct."

M. B. Helmer and family, of Fond du Lac, Wis., who have been touring the West for the past ten weeks, have just returned to their home. Mr. Helmer declares that on his return he found the business of the Helmer Milling Co. in a prosperous condition. Among other contracts, road work will consume large quantities of material this season.

The Pittsburgh (Pa.) city building department has made a new ruling that henceforth an abbreviated transcript of every application filed for permit for a new building or for alterations and repairs will be posted daily. On this list will be given the number of application, names of owners and contractors and the estimated cost of each job.

The Pittsburgh (Pa.) Builders' Exchange, because of the big increase in attendance, has arranged to hold its Thursday noon luncheons at the new William Penn hotel. Secretary E. M. Tate now has over 400 members enrolled in the association which is one of the most active and best organized bodies of its kind in the country at present.

W. E. Atkinson, until recently state highway engineer at Baton Rouge, La., has been selected as consulting engineer by the supervising board of road district No. 2 of the Third ward. He will have supervision of the twenty-seven miles of gravel roads work in that ward, authorized recently by a bond issue of \$130,000. T. S. Shields, who has been in local charge of the state highway work in this parish for the last four years, will serve as Mr. Atkinson's assistant.

At the annual meeting of the National Fire-Proofing Co., held April 5, J. J. Fisher, the oil magnate, A. S. Reymer, S. F. Heckert and James J. Booth were elected directors to serve the three years. The company's plants are busy, the company now being in position to refuse orders. Like all other concerns it is having some difficulty because of a car shortage. The value of the company's properties as set forth by Mr. Heckert was regarded as a revelation, he making the point that should the company desire to liquidate the value of the properties would not only pay off the bonds but pay the preferred stockholders par and perhaps holders of the common.

The Penn Metal Co., of Boston, has established a general sales department in New York office, 559 West 36th-st., under the direction of F. M. Johnson. With a spacious warehouse in New York and with its mills located in Boston and Cambridge, affording quick boat and rail service to all eastern and southern points, the Penn Co. is now better prepared than ever to render exceptional service, especially as its shipping facilities are not subjected to the prevalent annoying freight tie-ups. The company has taken over the entire plant of the Eastern Expanded Metal Co. and claims to be the pioneer in the manufacture of expanded metal lath. Over 25 years' experience in making this material is behind Penn quality, and users of its product have learned to appreciate the fact that all sheets are true to size, properly squared and conveniently packed. The Penco metal corner bead carries the company's guaranty to be proof against corrosion, and every piece is made on a microminated scale, insuring absolute straightness. The Penn Co.

also assure the trade that, notwithstanding the scarcity of steel, they are prepared to make immediate shipment of all Penco products.

William E. Carson, president of the National Lime Manufacturers' Association, is urging members of the organization to encourage their employees to study the "high-cost-of-living" problem and its solution. In behalf of the association, he has recently issued a bulletin, entitled "The Garden," which contains valuable advice for anyone who wishes to till the soil. Commenting on this topic, Mr. Carson says: "One of the real problems that confronts not only the lime manufacturer, but the country at large, is that of the increasing cost of living that is reflected back on the pay-roll. A solution of the high cost of living is found in interesting every householder to plant a garden. In order to get this matter in concrete form so that each manufacturer can help his men, I am sending out a schedule for a garden. Unusual cold weather in January killed the truck crops in the Gulf districts. The potato, cabbage and onion crops were much less than usual in 1916 throughout the United States. There was a shortage of about one and a half billion bushels of grain last year in this country. There was a like shortage of food crops in 1916 throughout the world. The prices of food products are high at this date. There is every indication that they will still be higher, because there is not enough farm food in the United States to feed the people abundantly until new crops can be marketed. The freezing of the Southern truck crops means a curtailed supply and extremely high prices until July and probably until August. Unless a larger acreage of food crops than is usual is planted in 1917, and the yield per acre is greater than the average, the supply of farm foods will be short and the prices high for at least another year. In the face of this situation, it behooves every manufacturer to see that his men plant gardens and it will be well to hold out to them some encouragement in the way of a bonus for doing so."

Mr. E. B. Good, Jr., as was announced in our issue of March 22, is now known as the general sales manager of the Hercules Cement Corporation, sales office New York City. We feel certain that the dealer industry will be very much interested in knowing that Mr. Good is a great advocate of the dealer sales policy and that the building material industry in the East may rest assured that this company has acquired a man who will protect their interests.

It might also be of interest to our subscribers to know that Mr. Good was one of the first advocates of the exclusive dealer sales policy as the only policy which meant continued success and an assurance of increased profitable sales. Some twelve years ago, when Mr. Good first stepped into the building material industry as sales manager of the Weatherspoon Plaster Co., he was confronted by a conglomerate mixture of ideas with reference to sales. He canvassed the situation very carefully and figured out that there was only one road to success and to profits and that was by selling the dealer and the dealer only. He, therefore, cancelled all direct sales and instigated a dealer sales campaign which we believe was instrumental in increasing the sales of the Weatherspoon Plaster Co. many times, as well as placing that company on a firm, profitable basis. This merely goes to show that Mr. Good has always been an advocate of the policies which are very vital to every building material dealer and we feel certain you will be pleased to know that Mr. Good is an old-time advocate of these policies and will continue same with the Hercules Cement Corporation. He is a man of integrity, force and enthusiasm, and a man we know you will receive with the utmost confidence.

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PUBLISHED SEMI-MONTHLY

Devoted to the products of Quarry and Pit, Lime, Cement, Plaster, Sand and Gravel, Gypsum, Clay, Etc., and Fireproof Building Specialties. This journal is the authoritative organ of the industries that produce these products and of the Building Material Dealers who market them.

TRADEPRESS PUBLISHING CORPORATION.

538 South Clark Street.

CHICAGO.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

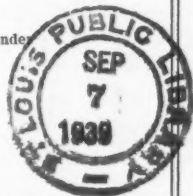
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Published on the 7th and 22nd of each month.

Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.



STATEMENT OF OWNERSHIP, MANAGEMENT, ETC.

REQUIRED BY THE ACT OF CONGRESS, AUG. 24, 1912, OF ROCK PRODUCTS AND BUILDING MATERIALS, published semi-monthly at Chicago, Illinois, for April 1st, 1917.

State of Illinois, County of Cook.—Before me, a notary public in and for the state and county aforesaid, personally appeared W. D. Callender, who, having been duly sworn according to law, deposes and says that he is the president of ROCK PRODUCTS AND BUILDING MATERIALS and that the following is, to the best of his knowledge and belief, a true statement of the membership and management of the aforesaid publication for the state shown in the above caption, required by the act of congress of Aug. 24, 1912, embodied in section 443, postal laws and regulations, printed on the reverse of this form, to wit:

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, TradePress Publishing Corporation; editor and managing editor, W. H. Parsons; business manager, George P. Miller; all of 538 S. Clark-st., Chicago, Ill.

2. That the owners of stock of said corporation are: W. D. Callender, T. J. Sullivan, Geo. P. Miller, A. Perrin and B. M. Bender, all of 538 S. Clark-st., Chicago, Ill.

3. There are no bondholders, mortgagees or other securities.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) W. D. CALLENDER, President.

Sworn to and subscribed before me this 26th day of March, 1917.

MARY F. LINCOLN.

My commission expires Oct. 7, 1917.

GO SLOW ON WAR COMPENSATION.

Washington, D. C., April 19.—Secretary Baker, as chairman of the Council of National Defense, has asked the Chamber of Commerce of the United States, through its president, R. Goodwyn Rhett, to ascertain the sentiment of the business men of the country in the matter of voluntary civilian

assistance in the care of dependent families of men enlisting in the military and naval forces.

"In the meantime," Secretary Baker declares in his letter to Mr. Rhett, "we would urge that employers of labor make only temporary arrangements with their employees until such time when it is hoped some uniform system can be suggested which will adequately take care of the situation."

MOTOR TRUCKS AID SUBWAY IMPROVEMENT.

Motor trucks are playing an important role in the building of Philadelphia's new \$65,000,000 subway improvement. While this stupendous engineering project is expected to take years to complete, the excavation for the central terminal station to be located underneath the City Hall building has been practically completed and a fleet of five-ton White trucks has been busy for months hauling thousands of tons of earth, rock and shale to a dumping ground five miles distant.

Engineers of the Keystone State Construction Co. in charge of the improvement, say that the hauling



FIVE-TON TRUCKS DELIVERING CEMENT TO PHILADELPHIA'S \$65,000,000 SUBWAY JOB.

of the excavated material was one of the most formidable transportation problems they have ever faced. The City Hall is the dividing line between North and South Broad street, in the heart of the

city's congested business district and traffic on all four sides is extremely heavy.

In order to care for the huge quantities of earth and rock removed daily, four or five loading bins were erected at different points near the outside walls of the building and one large bin inside the court-yard. The work of removing the soil from the tunnel and lifting it into the bins progressed rapidly, but for a time inadequate transportation facilities to haul it threatened to halt the improvement.

The long continuous hauls of heavy loads from the bins to the dumping grounds forced the first hauling contractor using a fleet of less expensive trucks to forfeit his contract. Another contractor owning similar equipment met the same fate. The Keystone company then entered into an agreement with Stedman Bent, of Philadelphia, one of the largest and most progressive hauling contractors in the country. Mr. Bent, a millionaire, owns a fleet of sixty-six White five-ton trucks and there was no question about him being able to give the kind of service that the construction company demanded to rush the subway improvement.

Mr. Bent was able to furnish as many trucks as the company could use and they proved so successful in their operation that later the fleet was enlarged and the additional trucks used to haul thousands of bags of cement, sand, gravel, crushed stone, lumber, tools and various other supplies.

At the present time a fleet of eight trucks are hauling over 500 yards of earth and rock a day over a nine-mile course. "The yardage could be doubled," asserts Mr. Bent, "if conditions at the dump were better. When we started hauling, the ground was covered with from three to five inches of water and below this was soft, black muck, and in many places we encountered quicksand."

GRADE OF CONCRETE ROADS UNLIMITED.

New York, April 20.—When New York State began concrete road building concrete was not used on grades exceeding a 5' rise in a distance of 100'. Experience has shown, however, that this limitation was unnecessary, and concrete roads having grades of 8' rise in a distance of 100', have been built. These grades are steeper than road builders like to have on highways carrying more than light traffic no matter what kind of construction is employed.

H. Eltinge Breed, first deputy commissioner of the New York highway department, declares that the grade of concrete roads seems to be limited only by the character of the mixture forming the concrete, the ability of the wet concrete to stay in place until it hardens, and the nature of the traffic on the road. He reports that even on steep grades the use of coarse sand in the concrete prevents the surface from being slippery, and he advocates brooming the wet concrete so that the very minute particles which make the surface smooth will be dislodged before the mass hardens. Dale Place, in Little Falls, N. Y., has a concrete pavement with an 18 per cent grade which is the steepest in New York state. Kansas City, Mo., boasts of a similar condition while Los Angeles, Cal., has Baxter St. with a grade of 29 per cent which is held to be the record up to date.

OBITUARY.

Henry Mather, president of the Mather Bros. Co., Richmond, Va., dealers in coal, cement and builders' supplies, died recently after a brief illness which had been considered not at all serious. He was in his seventy-first year. Mr. Mather was one of the city's successful business men and was held in the highest esteem. He was born Jan. 4, 1847, at Mather's Mills, O., and had been engaged in business in Richmond for nearly half a century. He is survived by his widow; a son, Raymond B. Mather, secretary and treasurer of the Mather Bros. Co.; two daughters, Miss Mary and Miss Louis; a brother, Samuel Mather, of Spring Grove, and a sister, Mrs. A. H. Kelsey. The business of the Mather Bros. Co. was established 48 years ago by the deceased and his brother, the late D. L. Mather.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

TRADEPRESS PUBLISHING CORPORATION
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SUPERINTENDENT WANTED.

Capable man needed to take charge of one of our pulverizing plants. This plant is equipped with a Rotary Drier, Allis-Chalmers Tube Mill, and a Bates Valve Packer. Person familiar with this type of machinery is preferred. Excellent opportunity and good salary. G. W. Johnson Limestone Co., New Castle, Pa.

Position Wanted—Superintendent of Quarry, Crushing or other plant. Several years as superintendent of large quarry. Experienced office and salesman. Will consider any kind of position with future. Reference. Address Box 1191, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position as quarry superintendent or general manager. A thoroughly competent quarry operator of long experience desires position where knowledge and ability are factors in economical operation. Will only consider contract on tonnage basis, or salary and bonus. Excellent references. Address Box 1168, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED AN OPPORTUNITY—By man 30 years of age, with 10 years' experience in every detail of accounting work. One mentally and physically fit for high grade connection, wants to connect with firm where brains, ability and results count. Reason for changing, want larger future. Address Box 1202, care ROCK PRODUCTS AND BUILDING MATERIALS.

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For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable

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This material like new
WIRE FOR PRICES
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BUSINESS OPPORTUNITIES

Plaster Making Equipment for Sale; cheap; Formulae included. Address Box 1198, care ROCK PRODUCTS AND BUILDING MATERIALS.

For Sale—Excellent Limestone Property with up-to-date grinding plant—best limestone for agricultural purposes in New York State. Located in good farming community where large quantities of agricultural limestone is used. Wonderful opportunity for live man with small capital. Might consider renting to reliable party who is familiar with this business. Plant fully equipped to produce from 50 to 75 tons per day. Henry H. Pryor, 314 Wilder Bldg., Rochester, N. Y.

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Large up-to-date crushing plant, fully equipped to turn out 1,500 yards of washed crushed stone per day. Will consider a proposition from a responsible party to take full charge of crushing plant and produce stone on yardage basis. Party must be able to finance the operating expense and give bond to cover his contract. Splendid opportunity for some one. Address XYZ, care ROCK PRODUCTS AND BUILDING MATERIALS.

MACHINERY FOR SALE

For Sale—1 24" Rodger Foundry & Machine Company Jaw Crusher. Good as new. Weight complete, 18,000 pounds. Capacity 30 to 40 tons of rock per hour. Price, \$500.00. Address 1201, care ROCK PRODUCTS & BUILDING MATERIALS.

GRAB BUCKETS FOR SALE.
Four 3-cu. yd. Andresen-Evans Type "A-1," 3 or 4-lane Grab Buckets, weight 10,000 lbs. each, manganese steel lips and teeth. These buckets combined handled less than 400,000 cu. yds. in excavation service for U. S. Government and are in splendid condition. A great bargain. Andresen-Evans Co., Railway Exchange Bldg., Chicago, Ill.

MACHINERY WANTED

Wanted—Williams or Jeffrey Hammer Mills and Crushers, similar to No. 1 and No. 2 Williams type deck sweepers. Address J. W. LeGore, LeGore, Md.

FOR SALE—2 Second-hand Kent Mills. Address Box 1195, care ROCK PRODUCTS AND BUILDING MATERIALS.



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was used in this hotel. It is made like other Cabot products—efficiently, lastingly, scientifically. You can rely upon it. Your customers and your architects will be thoroughly satisfied with it.

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One Model 55 Bucyrus Steam Shovel.
One 9x14 four-wheel Saddle Tank Porter Locomotive.
Seventeen two-way Dump Quarry Cars.
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Four Steam Pumps.
One Friction Hoist.
Two Good Boilers.
Rail, Screens, and a lot of other equipment; such as,
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Not a Boast--A FACT

We will prove the superiority of the No. 14 Drill by placing one of the outfits in your quarry against any or all other makes.

If the Cyclone doesn't out-drill and out-wear all other drills, we will remove it from the work without cost to you.

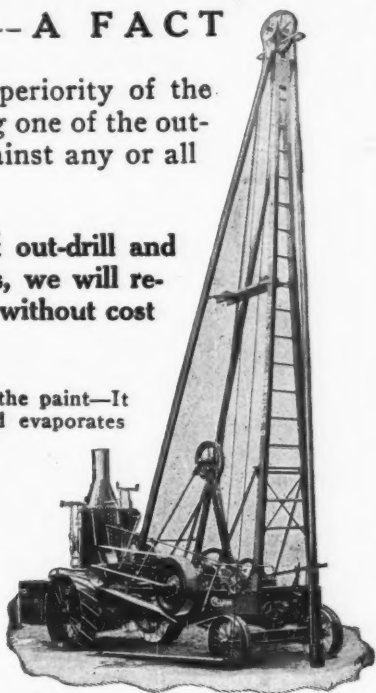
Our proposition gets below the paint--It eliminates talking points and evaporates hot air. It puts buying on a strictly engineering basis where it belongs.

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Rigidity—Strength
Saving on Labor
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SYKES EXPANDED CUP METAL LATH

Self-Furring

gives you these advantages. Study the cuts contrasting the Sykes method with that which requires furring strips.



This is Sykes Expanded Cup Metal Lath.

As sketch above illustrates—(1) Sykes Metal Lath is applied direct to sheathing boards over waterproof paper. (2) It insures a wall of exactly the same thickness. (3) Therefore, a wall of equal expansion and contraction at every point, eliminating the danger of cracking due to uneven expansion. (4) Sykes Metal Lath being "backed up" by sheathing boards, is perfectly rigid. (5) It is easy to plaster over. (6) There is no waste mortar because every particle goes to make up the required thickness of wall.



This is Ordinary Metal Lath.

Furring strips add 5 to 10 cents a square yard to cost of building wall. There is no key between Furring Strip and this lath. At the points where Furring Strips occur the plaster is, of course, much thinner than at other places. Result: uneven strength and uneven expansion, liable to cause cracking in plaster.

There is actually more mortar required to plaster a wall of given thickness using ordinary metal lath than is required if you use Sykes Metal Lath; simply because it requires more mortar to secure a key back of the ordinary lath than is necessary for Sykes Metal Lath.

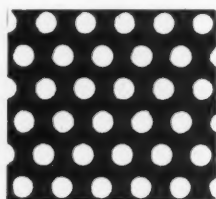
Sykes Self-Furring Feature saves 5 to 10 cents a square yard. Sykes lath cannot be applied wrong. It is heavier than others of same gauge because cut with wider strands. Approved by U. S. Government for Post Office work; indorsed by architects.

SYKES METAL LATH is best — for
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Write for free sample and for
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Let us figure on your requirements.

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HOISTING rope of every description for elevators, mines, coal hoists, ore hoists, conveyors, derricks and cranes, stump pullers, steam shovels, dredges, skidder rope for logging, ballast, unloading. Towing hawsers, mooring lines, tiller rope, and ship's rigging. Power transmission. Suspension bridge cables. Rope for all haulage purposes. Flattened strand rope. Non-spinning rope. Steel clad Flattened strand rope. Non-spinning rope. Steel clad rope. Locked coil track cable for aerial tramways. Flat rope.

Special rope made to order to suit any purpose

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ORDER A CAR AND BE CONVINCED

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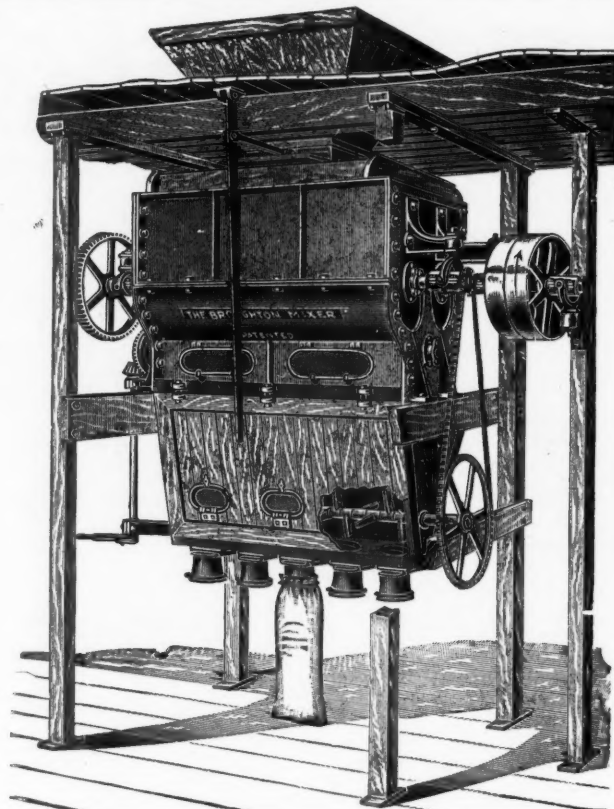
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Chattanooga, Tennessee

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Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

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NORTHWESTERN STATES PORTLAND CEMENT COMPANY

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"CONCRETE FOR PERMANENCE"

Concrete for Permanence "Wolverine" for Concrete

**Wherever used "Wolverine" has
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WOLVERINE PORTLAND CEMENT CO.
COLDWATER, MICH.

Write for prices and information. W. E. COBEAN, Gen. Sales Agt.

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MACHINE - MOLDED



For the machine molding process an accurate pattern of but one tooth is required. This pattern or tooth block is mechanically spaced around the circumference of the gear, insuring each tooth being a duplicate of every other tooth. The result is a gear as near perfect as a cast gear can be made.

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Gears run smooth without noise and transmit full loads without waste of power. Cost no higher than inferior gears.

Send your inquiry for prices on **Screw Conveyors, Steel Elevator Casings, Pulleys, Bearings, Rope Sheaves, etc.** We manufacture complete equipments of **Elevating, Conveying and Power Transmitting Machinery.**

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ROCK PRODUCTS and BUILDING MATERIALS

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				K.-B. Pulverizer Co., Inc.....	14	Osgood Co., The.....	15	Traylor Eng. & Mfg. Co.....	9
Bacon, C. Earle.....	7	Fate, J. D., Co.....	14	Kelley Island Lime & Trans. Co.,	48	Penn Metal Co.....	1	Trussed Concrete Steel Co..	26
Bartlett, The C. O., & Snow Co.,	9	Frank, M. K.....	42	Kent Mill Co.....	4	Penn-Allen Cement Co.....	2	Trus-Con Laboratories.....	47
Bates Valve Bag Co.....	12	French, Sam'l H., & Co.....	47	Kritzer Company, The.....	50	Pennsylvania Crusher Co....	2	Vulcan Iron Works.....	13
Bostwick Steel Lath Co.....	15	Fuller Eng. Co.....	44			Plymouth Gypsum Co., The..	44		
Bradley Pulv. Co.....	5			Lakewood Eng. Co., The.....	3			Wallace Stone Co.....	42
Brennen Wahl Co.....	49			Lehigh Car Wheel & Axle Wks.	7	Raymond Bros. Impact. Pulv. Co., The.....	5	Webb City & Carterville Fdy. & Mch. Co.....	8
Butterworth & Lowe.....	9	Glutrin Paving Co.....	26	Lehigh Portland Cement Co..	52	Revere Rubber Co.....	2	Webster Mfg. Co.....	51
Byers Mach. Co., John F.....	49	Griashaw Co., Wm. B.....	42	Leschen, A., & Sons Rope Co..	28	Ricketson Mineral P. Wks....	47	Weller Mfg. Co.....	15
				Lewistown Fdy. & Mach. Co..	9	Ruggles-Coles Engr. Co.....	2	Whitehall Cement Mfg. Co....	45
Cabot, Samuel, Inc.....	42	Hais, Geo., Mfg. Co.....	14					Williams, C. K.....	42
Caldwell, H. W., & Son Co....	45	Hendrick Mfg. Co.....	44	McLanahan Stone Mch. Co....	7	Sanderson Cyclone Drill Co...	43	Williams Patent Crusher & Pulverizer Co.,	11
Calvert Mortar Color Works..	42	Hunt, Robert W., & Co.....	44	McMyler Interstate Co.....	16	Sauerman Bros.....	14	Wolverine Portland Cement Co.	45
Carolina Portland Cement Co.	47	Huron, Wyandotte Portland Cement Co.....	2	Miscampbell, H.,	50	Scoto Lime & Stone Co.....	48	Worthington Pump and Ma- chinery Corp.,	
Chattanooga Paint Co.....	44			Mitchell Lime Co.....	49				
Clapp, Norstrom & Riley.....	49								
Clinchfield Portland Cement Corp.,	2								

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are pure and brilliant in tone, economical in application and a permanent guarantee against fading and washing

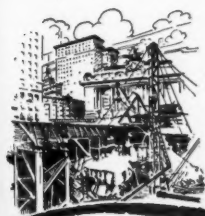
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Build your reputation into the heart of your community with materials of quality



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THE BACKBONE OF PERMANENT CONSTRUCTION



Every Construction Job
Every Concrete Floor
Every Cement and
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In fact every structure of any kind offers an opportunity for the sale of several or many

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The increased cost of building material makes it necessary that all construction work be made as lasting and permanent as possible. That is why architects are universally specifying Trus-Con Waterproofings, Dampproofings, Technical Coatings and Floor Hardeners. That is also why the demand for these materials grows greater every day.

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Waterproofings, Dampproofings, Technical Coatings
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BANNER HYDRATE LIME

*Carries more sand for Mason Work,
than any other lime on the market*

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A. H. Laumar *President*

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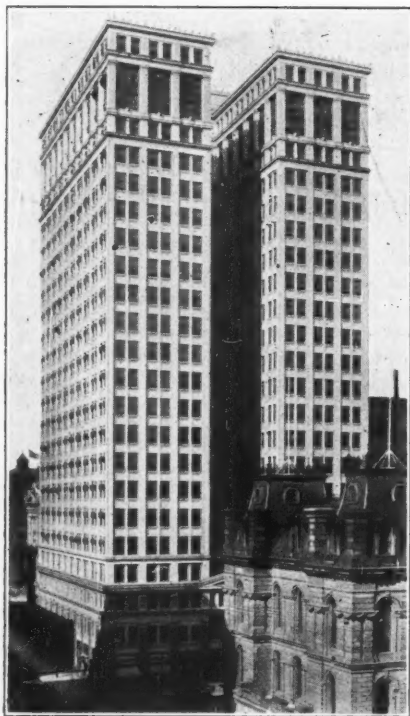
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BULK and Barreled --- **"MASON'S HYDRATE"**—For Brick-work, plastering and masonry. --- **"LIME FLOUR"**—Hydrated Finishing Lime—Best on the Market. --- **"CLOVER GROWER"**—Land restorer, for the farmer—none better. --- **"CARBO HYDRATE"**—Soil sweetener—crop producer. --- Prompt shipments. --- A dealer wanted in every town. --- **WRITE OR PHONE FOR PRICES.**

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Delaware, Ohio



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Plastering Contractors.

A Million Dollars

Is not spent carelessly. That is why all the walls of this finest of Michigan buildings are finished with

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Rock
Wall Finish"**
Hydrated Lime.

Write us

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Western
Lime Co.**
Huntington, Indiana

*The Largest
Producers
of Ohio and
Indiana
Lime*

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TIGER LIME

Not only increased profits but also the good will of architects and builders come to the dealer in Tiger Brand Lime.

**THE KELLEY ISLAND
LIME & TRANSPORT CO.**
CLEVELAND, OHIO

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FORTY-TWO CONCRETE BRIDGES

now building on the Indianapolis & Frankfort Railway, contain

Mitchell Hydrated Lime

H. F. Whitney, Engineer in charge, in the prize winning letter to the Hydrate Lime Bureau says:

"With the exception of the small culverts most of the bridges contain from 1000 to 1500 cubic yards of concrete. The concrete for all the structures of any size is being handled by means of a tower. About ten of these are located at public highways where a good supply of water could not be obtained, except at a considerable expense. The use of Hydrated Lime enables us to cut down the water and still have concrete flow freely in the spouts.

Several of the flat top subways are complicated skew spans with numerous corners. The lime has proven very successful in these structures as it prevented honey-comb and gave a smooth face in parts of the structures that we could not reach to spade. The cost of spading is reduced 50 per cent by the use of lime.

The lime makes the concrete more dense and more easily handled after it is deposited in the forms. It is frequently necessary to move a batch to some other part of the form when it has been deposited in the wrong place by the chute. The labor cost for this kind of work has been reduced about 40 per cent by the addition of lime.

On bridges where the reinforcing is closely spaced the lime has been of great assistance because it enables us not only to place the concrete easily but it also prevents the separation of the aggregate when the mixture is being forced between and under the bars with wooden paddles.

Because of the reduction of water in the mixture there is very little rough material deposited on the face, such as will occur when the mixture is very wet and the water seeps through the forms. This feature, together with the material reduction in honey-combing, has reduced the cost of finishing the face after the forms are taken off.

I have no hesitancy in recommending the use of Hydrated Lime in reinforced concrete."

Mitchell Hydrated Lime was selected for this work because it passed the rigid requirements of the Engineering department of the Pennsylvania Railroad System.

MITCHELL LIME COMPANY

MITCHELL, INDIANA

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- 1—Model 220 Marion, can be equipped with revolving stripping shovel, shop number 2840. (Has moved about 350,000 yards.)
- 1—Class 14 Bucyrus, shop number 720, 60-ft. boom, 2-yd. Page bucket.
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- 1—3 T steam Monaghan, shop number 205, latest walking device, 70-ft. boom, 3½-yd. special Page bucket, equipped with lighting plant, built new in 1914.

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- 70 C Bucyrus, shop number 1616—2½-yd. dipper.
- 70 C Bucyrus, shop number 1595—2½-yd. dipper.
- 70 C Bucyrus, shop number 1444—2½-yd. dipper.
- 70 C Bucyrus, shop number 1371—2½-yd. dipper.
- 70 C Bucyrus, shop number 1287—2½-yd. dipper.
- 95 C Bucyrus, shop number 1180—3½-yd. dipper.
- 70 C Bucyrus, shop number 1160—2½-yd. dipper.
- Model 61 Marion, shop number 2800—2½-yd. dipper.
- 45 C Bucyrus, shop number 1297—1½-yd. dipper.
- 45 C Bucyrus, shop number 1202—1½-yd. dipper.

- Standard 70-ton Bucyrus, shop numbers 984, 843 and 733—2½-yd. dipper.
- 1—Class F 45-ton Vulcan—1½-yd. dipper.

SPREADER CARS.

- 3—100,000 pull, all steel Jordan spreaders, shop numbers 213, 235 and 305.
- 2—Standard Western.

REVOLVING TRACTION SHOVELS.

- Model 28 Marion, shop number 2652, ½-yd. dipper.
- Model 28 Marion, shop number 2792, ½-yd. dipper.
- 1—Erie, Type B, ¾-yd. dipper, built new Oct., 1916.
- 1—18 B Bucyrus, shop number 1926, equipped with long and short dipper sticks for sewer work.
- 1—25 B Bucyrus, shop number 1850, equipped with long and short dipper sticks; also one 1-yd. sewer bucket and 1½-yd. standard bucket.
- 1—No. 1 Thew on standard trucks, 1-yd. dipper, shop number 472.

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- 36" gauge, 10"x16", 18-ton, long tank.
- Davenport—Shop numbers 964, 965, 1472 and 1473, used one season; shop number 1294, used about three weeks.
- Vulcans—Shop numbers 1280, 1290, 1591 and 1839.

All of the above equipment is owned by us and overhauled in our shop before leaving our Works.

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For Immediate Shipment

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- 1—36", 9"x14" Porter, shop number 4952.
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- Ingersoll-Rand steam drills.
- 2—gas Sparta, non-tractor drills.

- SHEET PILING—20 tons of sheet piling.

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- 1—Double drum Flory, with boom swinger, size of engine 7"x10" with boiler, used two months.
- 1—10"x12", double drum, cable-way, Lidgerwood, without boiler.
- 1—Double drum, 5¼"x8" American, without boiler.

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- 1—100 H. P.
- 1—40 H. P. Nagle, used one year.

BOILERS—Upright Type.

- 6—20 H. P.
- 1—15 H. P.
- 2—12 H. P.

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- 1—2½-yd. Page drag line.
- 1—2½-yd. Bucyrus shovel bucket.
- 2—1-yd. Bucyrus shovel bucket.
- 1—1-yd. clam shell.
- 1—¾-yd. clam shell.

PUMPS.

- 1—4½"x2½" Pratt Duplex.
- 1—4½"x2½"x4" Snow.
- 1—4½"x3½"x4" Fairbanks.
- 1—6"x8" Fairbanks.
- 1—7"x8" American.
- 1—3½"x3½" Prescott.
- 1—Emerson deep well.

- CARS—Western Side Dump Cars.
- 12 and 16-yd. Western standard gauge air dump.
- 3 and 4-yd., 36" gauge.
- 1½-yd., 24" gauge.

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- 300 tons—¼" to 1" twist steel bars.
- 150 tons—½" twist steel bars.

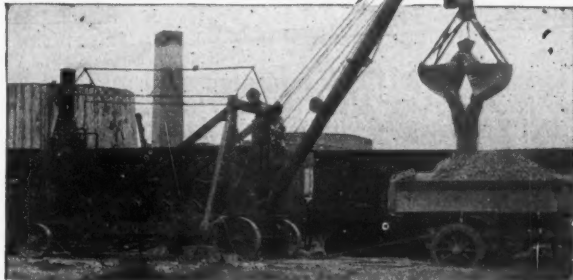
RAILS.

- 32 tons—20-lb. rails with bars.
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- 200 tons—60-lb. rails with bars.

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Will Cut Your Handling Costs
Self-Propelling — On Broad Road Wheels

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You Are Overlooking Many Opportunities

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

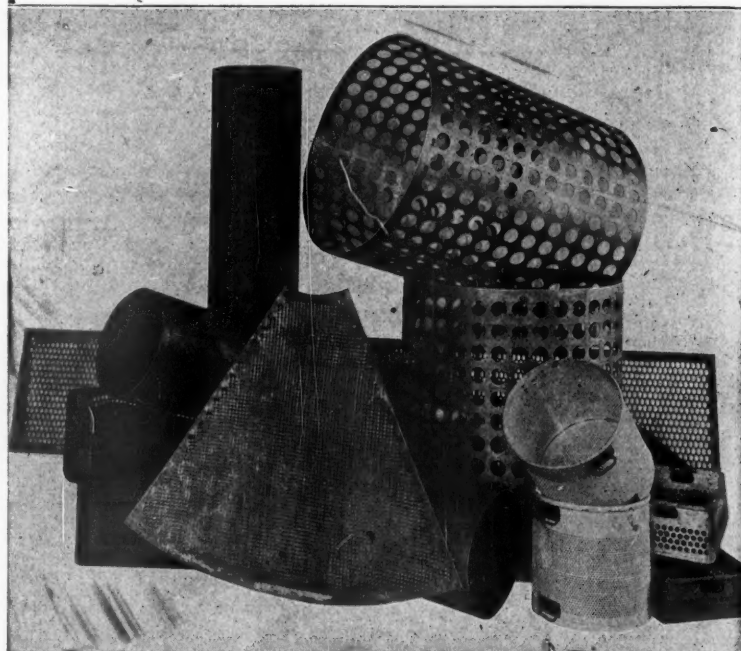
The Toepfer Hydrator

was two years in continuous use at one plant working ten hours daily before being put on the market. Another machine installed last season will pay for itself in one year at its present rate of saving over former methods. This machine was started by an inexperienced man and turned out a first class product from the very first day. THAT SHOWS THE SIMPLICITY OF THE TOEPFER HYDRATOR.

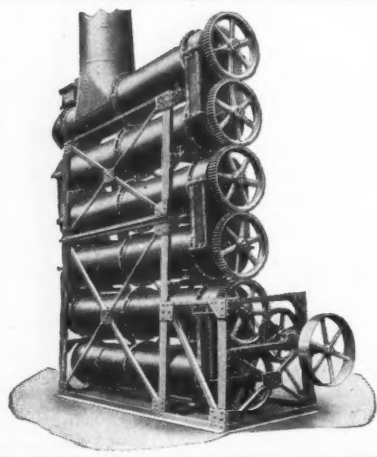
W. Toepfer & Sons Co.
MILWAUKEE

PERFORATED METAL

Steel Screens ∴ ∴ Iron and Steel Work



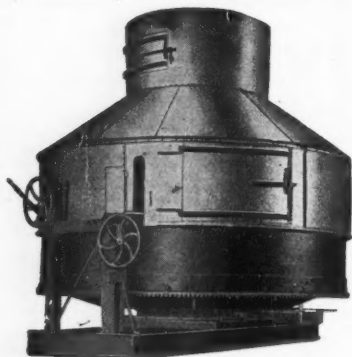
ELEVATOR BUCKETS, STEEL TANKS, ETC.
W. TOEPFER & SONS CO.
84 Menominee St. ESTABLISHED 1855 Milwaukee, Wis.



Hydrated Lime THE KRITZER WAY

Insures a product which has a standard market value. We install plants complete, designed by our own expert engineers to meet local conditions and turn out a uniform grade of Hydrated Lime of the highest standard, and with the greatest economy in cost of production. The Kritzer Continuous Hydrator, and the accessories installed with it, are the recognized standards in this line.

THE KRITZER COMPANY, 72 W. Adams St., Chicago, Ill.



Clyde Hydrator with Hood
"The common sense way"

SIMPLICITY IS THE KEYNOTE OF SUCCESS

IT does not take a "master mind" to install a CLYDE Hydrating plant, nor does it take a "high priced" engineer to run one. If YOU, Mr. Lime Manufacturer, realized how simple it is to obtain a PERFECT HYDRATE, with the CLYDE HYDRATOR you would place your order with us by FIRST MAIL. Write us today—NOW, and let us explain to you what CLYDE PROCESS hydrated lime is and how to obtain the best results, then

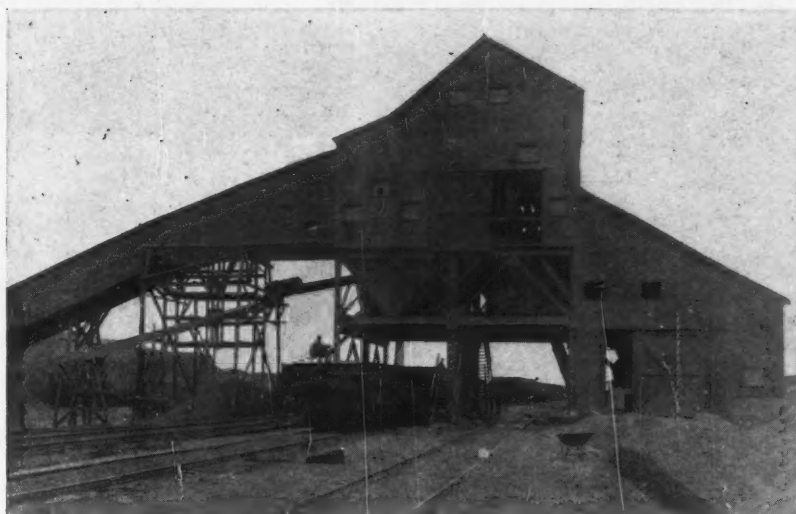
Use your own judgment—it's up to you

H. MISCAMPBELL, Duluth, Minn.

Patentee and Sole Manufacturer

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SHUT-DOWN PROOF



EVERY producer whose raw material is rock, sand or gravel, knows that the greatest enemy of profit from his invested capital is the enforced shut-down due to broken machinery. It may be a single gear that ties up the whole plant, but often it is a case where a few dollars more in the first cost would save many dollars in profits.

The plant pictured above is an example of the truth that it pays to build well. The operators realize the value of having every part as heavy and as hard as reason and good practice will allow, and in this, with the maintenance of a stock of repairs, the Western Indiana Gravel Co. have at Lafayette, Ind., a plant as nearly shut-down proof as foresight can make possible.

It is a three-track, steel-frame, iron-covered gravel plant with a capacity of 2500 cubic yards a day, loading direct into cars. The steel-work and machinery was designed, made and installed by

The Webster M'f'g Company

Tiffin, Ohio

Chicago

New York

(108)

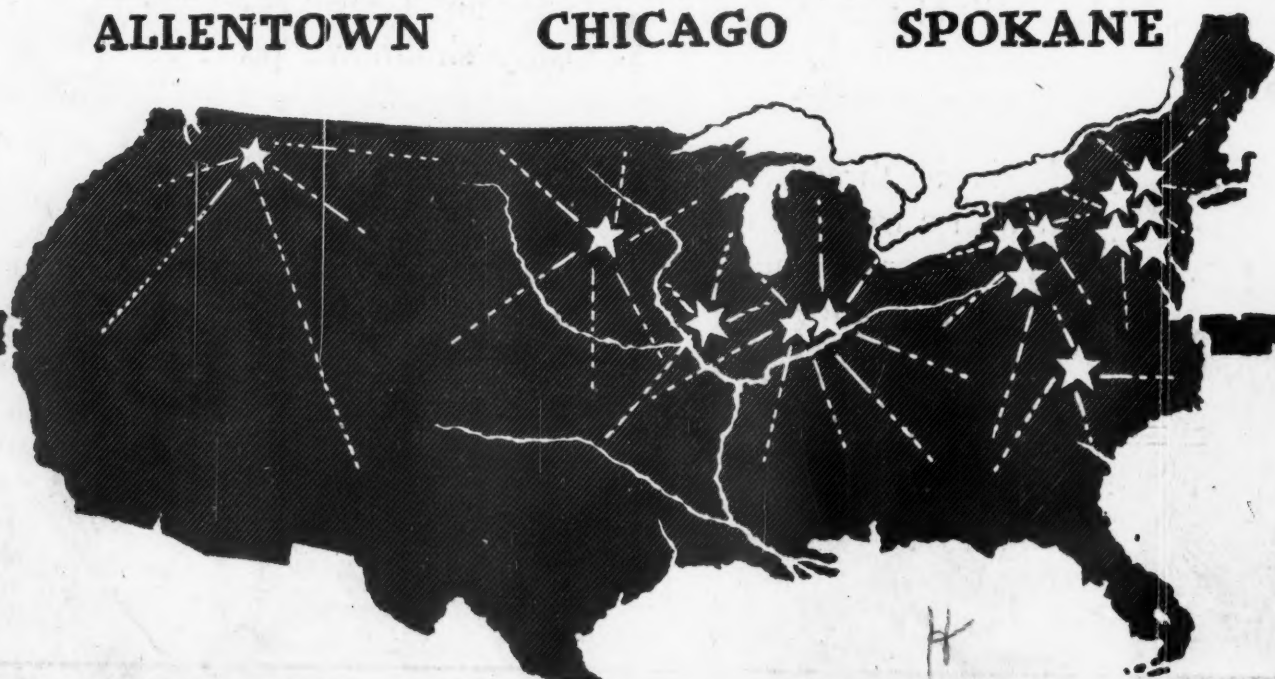
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The National Cement.



Fourteen mills owned
and operated. Distribu-
tion from coast to coast.

LEHIGH PORTLAND CEMENT CO.
ALLENTOWN CHICAGO SPOKANE



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

